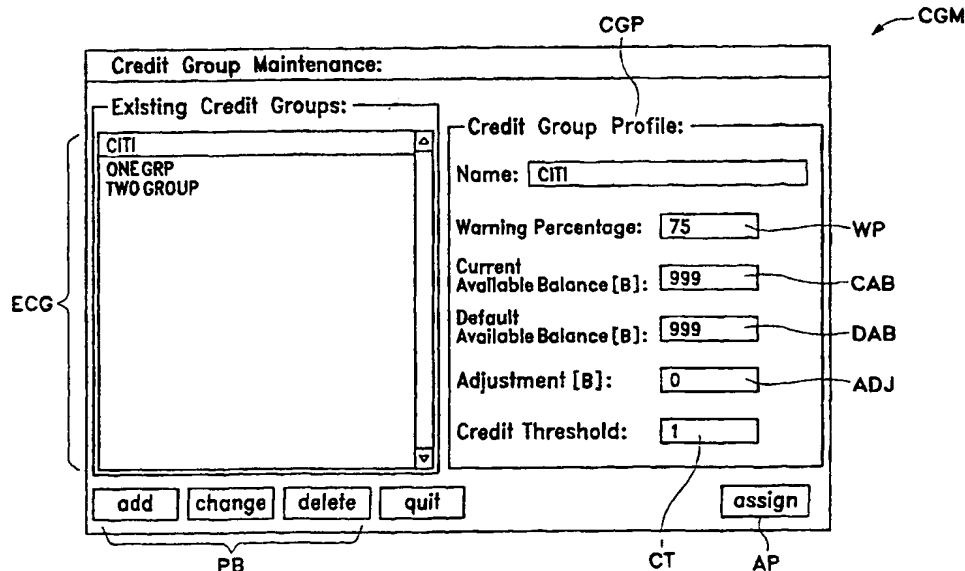




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(54) Title: COMMUNICATION OF CREDIT FILTERED PRICES IN AN ELECTRONIC BROKERAGE SYSTEM

**(57) Abstract**

Computerized trading system for trading financial instruments having a communication network connecting traders dealing in financial instruments and a plurality of trader terminals connected to the communication network. The communication network comprises a credit store for storing an indication of credit available from each credit granting entity, a price distributor for distributing the price quotation messages to trader terminal for display, a credit filter to filter the price quotation messages to each trader terminal associated with at least one credit granting entity.

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- 1 -

COMMUNICATION OF CREDIT FILTERED PRICES IN AN ELECTRONIC BROKERAGE SYSTEM

TECHNICAL FIELD

The present invention relates generally to an electronic brokerage system having a communication network connecting traders dealing in financial instruments, and more particularly to a computerised system for trading derivatives such as forward rate agreements.

5 US-A-5375055 discloses an automated matching system for anonymous trading of foreign currencies in which traders may enter bids and offers through trader workstations into a distributed matching system. Credit limits, set by the potential parties to a transaction, are
10 stored at Market Access Nodes to which the workstations are connected. The credit limits are analysed as part of the deal completion procedure, and deals which would exceed the credit limits are inhibited. The Market Access Nodes are linked to one or more Arbitrators and to one or more Market Distributors. The Market Distributors' function is to
15 distribute prices of open bids and offers using Pre-Authorisation Matrix derived from credit limits stored at the Market Access Nodes. The Arbitrators handle deal matching and resolve possible contentions in trades which could otherwise occur because of the distributed nature of the system, preferably using a similar Pre-Authorisation Matrix. The
20 Pre-Authorisation Matrix is used to inhibit trades between incompatible counterparties and also to screen bids/offers prior to display so that

- 2 -

bids/offers shown to a trader are "dealable", that is there is credit available to the trader to at least partially deal the displayed quote. An improved version of this system is also known and implemented as the EBS system for dealing foreign exchange.

5 Thus, this known prior art trading system provides an individual trader with a way to determine, prior to committing to buy or sell at a displayed price from one or more anonymous counter parties, whether he has credit with the anonymous counterparty offering (bidding) a particular price currently displayed on his screen and thus whether any
10 attempt to buy or sell at the displayed price will be subsequently invalidated by the system for lack of such credit.

 We have appreciated, however, that whilst such a system has the benefit that only available prices are displayed, the credit considerations do not allow trading of certain products, such as futures.
15 We have appreciated that there are further technical considerations in providing a system which can determine a measure of credit for futures which, by definition, do not have a fixed credit liability.

SUMMARY OF THE INVENTION

20 Accordingly, there is provided a computerised trading system for trading financial instruments between traders at trader terminals, comprising:

 a communication network for transmitting electronic messages between the trader terminals,

25 a plurality of trader terminals connected to the communication network, each trader terminal being associated with a credit granting entity, and each trader terminal comprising means for generating price quotation messages in respect of financial instruments,

 the communication network comprising:

30 a credit store for storing an indication of credit available from each credit granting entity,

- 3 -

a price distributor for distributing the price quotation messages to trader terminals for display,

a credit filter arranged to filter the price quotation messages to each trader terminal associated with at least one credit granting entity,

5 wherein the credit filter is so arranged that only the prices indicated by price quotation messages for which it is determined with reference to the credit store that a minimum credit threshold is available on a bilateral basis from and to the one credit granting entity are displayed at the trader terminals associated therewith, the minimum
10 credit threshold being at least equal to the available credit required by the one credit granting entity to complete a trade of a predetermined minimum size,

 wherein a separate minimum credit threshold is established for each credit granting entity and is derived from a function of at least one
15 parameter specific to each credit granting entity and related to the nature of at least one financial instrument being traded.

 The system of the invention thus provides the advantage that each credit-granting entity has the ability to set its own minimum credit threshold. In a system embodying the invention, a trading floor
20 administrator (TFA) may thus select an appropriate threshold based on parameters of the TFA's selection. This gives a degree of control not provided in the prior art noted above allowing a system embodying the invention to trade more types of financial instrument, including forward rate agreements (FRAs).

25 In an embodiment of the invention, the at least one parameter is a factor indicative of an estimated risk associated with each financial instrument traded. This allows a trading floor administrator to limit the exposure of trades occurring on the trading floor under his/her supervision. The at least one parameter is preferably a volatility factor
30 for each type of financial instrument traded. The TFA can thus use the volatility factor to ensure that an appropriate measure of risk is

- 4 -

associated with each financial instrument. For example, financial instruments traded in one currency may be considered to be a higher risk than other currencies.

In an embodiment, other factors may be included in the credit threshold calculation, such as a conversion rate and/or a factor based on the time to settlement of a financial instrument traded. Preferably, the factor based on the longest time to settlement is used. This allows the TFA to ensure that the prices are screened according to an appropriate measure of credit exposure.

The minimum credit threshold is preferably the maximum value of a function of a minimum order size, a conversion rate, a time to settlement factor and a volatility factor of all financial instruments traded. This ensures that all financial instruments for a predetermined minimum size deal will be displayed, provided that there is sufficient credit for that minimum size deal in the financial instrument with greatest credit exposure being traded.

In an embodiment, a plurality of trader terminals are preferably associated with at least one group to which the at least one credit granting entity extends credit. The group may comprise a plurality of trader terminals associated with a single trading floor/credit granting entity or with a plurality of trading floors/credit granting entities. The TFA may thus select appropriate groups of trading floors so that credit is extended to a group as a whole. Any one trading floor within the group may participate in the credit limit extended.

The indication of credit available from each credit granting entity to each group is preferably decremented after each trade between those groups, particularly by an amount derived as a function of the deal size and at least one parameter associated with each credit granting entity, such as a volatility factor, conversion rate, or a factor based on the time to settlement of the financial instrument traded.

- 5 -

The system thus uses factors both for credit screening of prices, and for calculating the credit utilisation of financial instruments.

Thus, each bid or offer is prescreened by the system for bilateral credit with each potential counterparty, before calculating an
5 anonymous "Dealable" price for presentation to any of the traders dealing with that particular financial instrument. The system includes the facility to derive an appropriate credit measure for futures.

In embodiment described later, the sensitive credit limit data indicating how much credit a particular client site is willing to extend to
10 each possible counterparty is maintained only at a Market Access Node associated only with that particular client, and only a simple yes/no indication of whether the entity (for example, a trader, a trading floor, or a bank) associated with that particular access node is willing to transact business with a particular counterparty is transmitted to the other nodes
15 of the communication network. In that embodiment, the pre-screening may thus be a simple check to determine whether any credit remains both from and to each of the two parties to the potential transaction which may be performed using a simple yes/no Pre-Authorisation Matrix before any bid or offer is transmitted to a particular client site.

20 Such Pre-Authorisation Matrices are preferably maintained at each of several regional nodes ("Market Distributors") of a distributed processing communication network, with each such Market Distributor node functioning as a price distributor and being connected by corresponding individual permanent links of the network to those client
25 sites ("Market Access Nodes") for which it is responsible for distributing market information including customised "Dealable" bid and offer prices in addition to global "Best" prices. To further limit the data received and processed by each relevant regional node computer, (ie, the Market Distributor node closest to the particular Market Access Node
30 associated with a particular counterparty), only changes in the credit state (ie, credit is no longer available or credit is now available from

- 6 -

party A to party B) are transmitted, and even those changes are not transmitted to Market Distributors associated with neither of those parties.

It should be noted that the embodiment described later will be one in which the functions of the network are distributed throughout a variety of components. This is considered to be the most effective manner of implementing the system. However, it will be appreciated that it would be a simple task to incorporate this functionality into a system with a single location for these functions.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the invention will be described by way of example only and with reference to the accompanying figures in which:

Fig 1 depicts an overview of the trader's trading screen;

Fig 2 shows a Tenor Detail Panel for the trader's screen shown in Fig 1;

Fig 3 shows Order Request Panel for the trader's screen shown in Fig 1;

Fig 4 shows a Multiple Order Request Panel for the trader's screen shown in Fig 1;

Fig 5 is an overview of the Communication Network and the various workstations and processing nodes associated therewith;

Fig 6 depicts a Pre-Authorisation Matrix;

Fig 7 shows the flow of messages in the communication network which are used to generate and distribute Dealeable Price information to each individual trader;

Fig 8 is a diagram of the message flow in deal matching; and

Fig 9 shows a Trading Floor Administrator's Credit Group Maintenance screen.

- 7 -

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Overview

A Forward Rate Agreement (FRA) is a contract between two parties to lock in a forward interest rate, for a period, starting at a specific date in the future. Each FRA contract can be categorised as a spot FRA, an IMM FRA, or a broken date FRA. All these may be traded on the system of the present embodiment. IMM is the abbreviation which has become customary to refer to an instrument traded on one of the International Monetary Market dates. In brief, IMM FRAs are traded for the four International Monetary Market (IMM) dates. Spot FRAs are traded for dates associated with today's spot date. A broken date FRA is a spot FRA which is traded for a different spot date than today's spot date.

A FRA trading screen of a system embodying the invention is shown in Figure 1. The FRA trading workstation presents a set of FRA contracts that may be traded in an electronically brokered format. Each type of contract is known as a tenor. Price information for a particular tenor is displayed on a tenor line. For each tenor line, the dealing system presents the best credit-screened bid and offer prices of all active quotes. Upon selection of the tenor line, the workstation presents a detailed view of the associated tenor showing contract dates and additional market view information.

A trader may select a tenor line and then submit one of four order types (Bid, Offer, Buy, or Sell). Each type of order requires the trader to specify an interest rate notional amount for a particular tenor. Once submitted, new orders are matched with outstanding orders in price/time priority. Compatible orders are matched resulting in the execution of deals. In order to encourage market making a trader can submit and adjust bids and offers for several tenors at a time.

For non-standard FRAs, a price inquiry function allows the trader to issue a system-wide broadcast to request a price for a broken date

- 8 -

FRA. A trader may respond to a price inquiry by selecting the entry in the bulletin board.

The credit facility uses pre-screened prices. Trading Floor Administrators (TFAs) at the trading floors enter credit limits for each counterparty group of trading floors. Dealeable prices are distributed to those floors that have credit with the price maker.

The trading screen shown in Figure 1 provides traders with the facility to enter bids, offers, buy or sell orders by selecting buttons on a toolbar at the top of the screen. The best bid/offer prices are displayed for tenors of various lines in one window and deals done by the trader and on the system as a whole are displayed in other windows. The display is better understood with reference to an example of a FRA deal.

As explained, a Forward Rate Agreement (FRA) is a contract between two parties to lock in a forward interest rate, for a period, starting at a specific date in the future.

For example, a 6x9 FRA is a contract covering a period that begins 6 months from now and ends 9 months from now. The *term* or *gap* of such a contract is 3 months. The two counterparties, one buyer and one seller, settle by cash payment at the start of the contract (in this case 6 months from now).

The buyer of a FRA will be compensated if future interest rates rise. The seller of an FRA will be compensated if future interest rates fall.

Settlement is based on the difference between the actual interest rate prevailing on the fixing date and the rate specified in the contract, for a specific notional amount stated in the contract. Settlement takes place at the beginning of the term.

As an example, consider a USD 6x9 FRA trade for \$100 million (US) at an agreed upon rate of 5.5675 executed on September 9th, 1997. The deal has the following characteristics:

- 9 -

Trade Date: September 9th, 1997
Spot Date: September 11th, 1997
Fixing Date: March 9th, 1998
Settlement Date: March 11th, 1998
Maturity Date: June 11th, 1998
Contract Rate: 5.5675
Notional Amount: 100 million (US\$)
Reference Rate: LIBOR

The period of this deal begins on March 11th, 1998 (the settlement date) and ends on June 11th, 1998 (the maturity date). On March 9th, sometime after 11:30 AM London time, the back office personnel at each bank will look on the appropriate Reuters page to read the 3-month LIBOR rate posted for March 9th. If, for example, this rate is 5.5800, then between the trade date and the fixing date, the interest rate has risen 0.0125 percent or 1¼ basis points. Therefore, a settlement amount must be calculated based on this reference rate of 5.58%. The settlement amount is the amount on the check paid by the seller to the buyer. The settlement amount is calculated using the following formula:

Settlement Amount Calculation Example

$$\frac{\text{Fixing Rate} - \text{Contract Rate}) \times (\text{Days in Period}) \times (\text{Notional Amount})}{(360 \times 100) + (\text{Fixing Rate} \times 100 \times (\text{Days in Period}))}$$

$$\frac{(5.58 - 5.5675) \times (92) \times (100,000,000)}{(360 \times 100) + (5.58 \times 100 \times (92))}$$

$$\frac{115,000,000}{87,336}$$

$$\underline{\underline{\$1,316.76}}$$

- 10 -

Note that if interest rates had fallen, then the buyer of the FRA must pay the seller.

FRAs serve as both a hedging and a speculative instrument. A bank may use an FRA to hedge against future inflows and outflows of cash on its balance sheet, or a bank may use an FRA to speculate in the future movement of interest rates. By definition, an FRA trades over-the-counter. The resultant contract is between two parties and is therefore dissimilar to a futures contract which is traded via an exchange.

FRAs for EBS can be split into the following categories:

- IMM FRAs
- Spot FRAs
- Broken Date FRAs

The present embodiment is described in relation to IMM FRAs; that is FRAs which are based on the International Monetary Market dates.

FRAs are distinguished by the dates of the contract, the reference rate, and the contract currency. Each type of FRA contract is called a tenor. Some example tenors are listed below:

- 11 -

Examples of FRA Tenors:

Cash 3 month

USD 1x4

USD 3x6

JPY 6x9

Cash 6 month

DEM 1x7

USD 2x8

JPY 6x12

Cash 12 month

USD 1x13

DEM 2x14

USD 12x24

IMM FRAs

USD Sep97

USD Dec97

JPY Mar98

*IMM FRAs with*a 6 month gap

USD Jun97-6

USD Sep98-6

JPY Sep98-6

Broken Date FRAs

USD 3x6(12)

DEM 2x14(10)

USD 0x3(3)

If the tenor is selected with a mouse or keypad, then the details of the FRA tenor line are presented in the top section of the screen. The detail area shows the best dealable, EBS best, and best regular prices for the selected tenor. The fixing date, settlement date, and maturity date of the active tenor are shown as well.

Turning again to Fig 1, the screen can now be better understood. The Tenor Detail Panel provides a detailed view of tenor line information and transaction activity. The Tab Controls allow a user to select one of several user-defined tab sheets. The user may designate the tab sheet properties and components. The Tenor Line shows a tenor indicator, best bid and offer prices, best amount available for bid and offer and a big figure. The TFA Messages area shows messages relating to Trading Floor Administration, such as credit notifications, deal recovery, help desk message broadcasts. The EBS Deals Listbox shows deals completed on the EBS system. The Trade Deals Listbox

- 12 -

shows deals completed by the trader using the screen, and the Toolbar allows the trader to select common trading commands.

A number of tenor lines (more than fifty) may be visible on the screen concurrently. There may be additional tenor lines that are not visible on the screen due to space constraints, but can be easily brought into view. The screen also allows the trader to elect to show fewer tenors (as few as eight) depending upon the trader's preference.

The Tenor Detail Panel is shown in Fig 2 and shows a selected Tenor Line in more detail. It includes:

- Tenor Identification (currency and description)
- Tenor Date Information (Fixing Date, Settlement Date, and Maturity Date)
- Regular Dealable Bid and Offer Prices for "regular" amounts satisfying credit screening (A "regular" amount is an amount at least equal to a system default value representative of a typical trade in a particular currency, and may for example be 50M pounds)
- Best Dealable Bid and Offer Prices (the best price available after credit screening for any amount) along with the total quantity ("Best Bid and Offer Amounts") available at those prices.
- EBS Best Bid and Offer Prices (the best price available on the whole system regardless of credit (though this may not be available to the trader) if this different from the corresponding Best Dealable Prices.

Note that much of this information is also shown in each Tenor Line of each Tab Sheet (Fig 1).

To the left of Fig 2 is a bid/buy Order Status indicator showing the amount requested and obtained for an open Order. If a Offer/Sell Order was pending, its status would be displayed on the right.

Note that the bid (buy) prices are on the left, and the offer (sell) prices are on the right, and that all displayed prices are arranged in

- 13 -

ascending order from left to right. The EBS Best Bid Price (if shown) will always be better than the Best Dealable Bid Price. This is because the credit granting entity for this trading floor may not have extended sufficient credit to the counterparty offering the Best Bid Price (or vice versa). Similarly, the Best Dealable Bid Price will always be at least as good as the Regular Dealable Bid Price. In the particular example shown in Fig 2, the Best Dealable Bid Amount is 120 which is larger than the "Regular" amount of 50, and consequently the same price (5.4775) is shown as the Regular Dealable Bid Price and the Best Dealable Bid Price.

Fig 3 shows the Offer Order Request Panel which appears on the right side of the Tenor Detail Panel when a particular Tenor has been selected and either the Offer or Sell key has been activated. (A similar Bid Order Request Panel appears on the left side of the Tenor Detail Panel when a particular Tenor has been selected and either the Bid or Buy key has been activated.) The Order Request Panel includes an Amount Entry Field and a Price Entry Field, both of which include up and down spin buttons for adjusting the respective entries up or down, as well as a Send Pushbutton for submitting the order (assuming appropriate validation checks are positive) and a Quit Pushbutton which dismisses the Order Request Panel without any action being taken. As previously indicated with respect to Figs 1 and 2, once a valid order has been submitted, its status is displayed on both the Tenor Detail Panel (Fig 3) and in the corresponding Tenor Line (Fig 2), with the latter showing only the Amount Remaining in the outstanding order (ie, the difference between the Amount Requested and the Amount Obtained shown in the Tenor Detail Panel).

Additionally, as shown in Figs 1 and 4, the trading workstation provides many features for managing multiple orders as a group. A group of orders may be selected using a mouse -then these orders may be interrupted (Tool Bar of Fig 1), or modified and re-submitted as a

- 14 -

group (using the Multiple-Order Request Panel of Fig 4). In this way, the trader is able to adjust a strip of outstanding orders as easily as adjusting a single order. Note that an optional Order Limit is applicable to Multiple Orders involving different Tenors for the same Currency, with a separate Order Limit Notional Amount being established for Bids and Offers.

The system of the present invention is applicable to trading various types of derivatives contracts but will be described in relation to Forward Rate Agreements (FRA) for which the described embodiment has been especially adapted.

Components in the system of the present embodiment

In the described embodiment, the trading system is an electronic brokerage system having a communication network for facilitating the buying and selling of futures by traders each associated with his own Workstation ("WS") located at a trading floor of a subscriber bank ("client site"). The hardware used in the system has similarities to the current EBS system for foreign exchange to which reference may be made.

As shown in Fig 5, each client site has a dedicated client computer ("Market Access Node", or "MAN") under the control of a Floor Administrator, which maintains transaction records, credit limits, and other confidential information originating with its associated trading floor. The WS's and the MAN associated with each trading floor are connected via a conventional self-repairing DEC VAX network to a nearby distribution node ("Market Distributor" or "MD") computer, which typically analyses and distributes current market data by means of dedicated permanent communication links to one or mor associated MAN's in a particular city (or other local region), and which may also provide administrative functions for the communication network.

- 15 -

The communication network comprises a credit store, stored at each MAN, for storing an indication of the credit available from the group of terminals associated with that MAN to other groups. As previously explained, a group may be one or more terminals, but is preferably one or more trading floors. The function of distributing prices is fulfilled by the Market Distributors. The Market Distributors also include a credit filter comprising a yes/no Pre-Authorisation Matrix from which it is determined whether prices should be transmitted to the trader terminals for display.

Although not considered critical to the present invention, a group of MD's is preferably supplemented by a common trading region processing node ("Arbitrator Node" or "ARB"), with the ARB performing those functions (such as identifying potential matches between buyers and sellers, and other aspects of the "Deal Matching" process that require coordination with more than one client site) which make the most efficient use of the communication network if done centrally or regionally, while the MD's perform those functions (such as generation of separate Dealable price information for each individual client site) which are readily implemented in parallel in a distributed processing network and which make most efficient use of the communication network if done locally or in close proximity to the individual client sites.

In that regard, it is possible to have more than one ARB, with each ARB having primary responsibility for trades initiated by Market Makers in the ARB's own trading region, and being connected to all the MAN's and MD's of that trading region as well as to the other ARB's in other trading regions by permanent dedicated links of the communication network. In the majority of deals, it is anticipated that both the Maker and the Taker will be within the same trading region and thus will be directly linked to the same ARB which can therefore identify a potential match and coordinate its final execution without any communication with the other ARB's; at the same time, the other ARB's

- 16 -

can simultaneously be processing deals related to other traders in other regions. Alternatively, a single arbitrator could be dedicated to all trades involving a discrete subset of the available financial instruments. In a presently contemplated commercial embodiment, a single central Arbitrator is dedicated to FRA trades, while several regional Arbitrators are collectively dedicated to spot FX trades.

Whether the communication links between nodes are permanent (maintained indefinitely between two network components) or temporary (established dynamically for a short period of time) they are preferably "logical links" which have the property that messages sent in a certain order over the same logical link are guaranteed to reach their destination in the same order. Moreover, the communication network is preferably provided with sufficient error detection error correction, and network self-repair capability to guarantee that messages sent via these logical links are error free.

In summary, each MAN is connected to other MAN's by a robust communication network which connects the various trading floors and which supplements the MAN's with a number of processing nodes (preferably in the form of MD's and ARB's) to facilitate the distribution of price quotations and other market data and to execute transactions by matching eligible Market Makers with eligible buyers and sellers and by monitoring the transactions until they have been completed or aborted, with the MAN's being responsible for trading floor specific tasks such as logging the completed transaction and updating the credit limit that was previously available to the counterparty trading floor.

Although described above in terms of a distributed architecture, it should be noted that a single central computer system could be used to implement the various functions described above. The system of this alternative embodiment would thus comprise a plurality of workstations connected by a network to a central computer system. The central system would include the credit store, distributor and credit filter

- 17 -

arranged to filter prices for distribution to the workstations. This is a simpler, but non-preferred, implementation. The distributed embodiment described is considered to be a more robust and secure design.

5

Credit Processing

The credit processing performed for interest rate futures and other derivatives in general, and FRAs in particular, differs significantly from credit processing for spot FX trading. While spot FX is concerned with settlement risk, for FRAs market risk is the primary concern. For this reason, the technical considerations in implementing the system differ.

10

For Forward Rate Agreements in the present embodiment, three factors are used to calculate credit utilisation;

15

1. The time between the trade date and the settlement date (start of the contract period), hereinafter called the TTS (Time To Settlement).
2. The volatility of interest rates in the currency of the FRA.
3. The time between the settlement date and the maturity date, ie, the gap of the FRA.

20

The actual liability for a FRA is not fixed at the time the price is taken because, as can be seen from the formulae above, the actual liability will depend on the difference between the interest rates at the trade and settlement dates. For this reason, a Credit Utilisation formula has been devised and implemented in the present invention. The credit utilisation is as follows:

25

Credit utilisation = (Deal size) x (TTS factor) x (#
Months/3) x (Interest rate volatility factor) x (CCY
conversion rate).

30

- 18 -

The TTS Factor is a Time to Settlement Factor assigned to every month between 0 and 24. When credit is calculated, the workstation will use the TTS Factor assigned to the TTS Month. The workstation will calculate the number of months between the Trade Date and Settlement Date to find the TTS Month. The Credit Utilisation calculation will then use the TTS Factor assigned to that month. This allows the TFA to factor into the Credit Utilisation calculation the time between the Trade and Settlement Dates.

The TTS factor is used in the credit calculation. This is a non linear calculation method for the time between trade date and settlement date. A table, initially ranging from 0-36 months, of TTS values to be used in the credit utilisation formula. The factors in the table must be able to be set by the TFA. The table is to be pre-populated with factors calculated by taking the square root of the TTS. The initial values of the table for the 0 and 1 month TTS are to be 1.

Example of pre-populated TTS table:

TTS	0	1	2	3	6	9	12	15	18	36
factor	1	1	1.414	1.732	2.449	3	3.464	3.872	4.242	6

The currency volatility parameter must be able to be entered and modified online via the TFA for each FRA currency traded on the local floor. And as previously explained, the linear calculation method for the contract period or "gap" (the "three month equivalent") is a fixed formula that can't be modified online:

$$3 \text{ mo. Equivalent factor} = (\# \text{ of mos in gap})/3.$$

of Months in Gap/3 - All IMM tenors have a 3 month gap between the Settlement and Maturity Dates. So this value is calculated as 3/3 or 1.

- 19 -

Interest Rate Volatility Factor -The IR Volatility Factor is a percent value assigned to each currency. The system will store the value as a percentage number,

CCY Conversion Rate -The currency conversion rate between the Credit Limit Currency and the currency for which the deal is done.

As an example, a USD June 00 FRA Traded June 16, 1998 for 100 million has the following characteristics:

Trade Date:	June 16, 1998
Fixing Date:	June 19, 2000
Settlement Date:	June 21, 2000
Maturity Date:	September 20, 2000
Tenor Cap:	June 21, 2000 to September 20, 2000 (91 Days or 3 Month Gap)
Deal Size:	\$100,000,000

Factors are assigned by the TFA along with the Credit Limit Currency which is assigned on the Market Access Node. In this example, the Credit Limit Currency is USD. The factors that would be used for the above example are derived using the above table.

Using the above formulae, the credit utilisation is:

$$\begin{aligned} & (\text{Deal Size}) \times (\text{TTS Factor}) \times (\# \text{ of Months in Gap}/3) \times \\ & (\text{Interest Rate Volatility Factor}) \times (\text{CCY Conversion Rate}) = \\ & \text{Credit Utilisation} \end{aligned}$$

$$\begin{aligned} & (100,000,000) \times (4.89898) \times (3/3) \times .00014 \times (1.000) = \\ & \$68,586 = \text{Credit Utilisation} \end{aligned}$$

- 20 -

In implementing credit limits on the FRA system, the Trading Floor Administrator (TFA) has the ability to set and adjust the various parameters from which matching criteria are derived.

5 A credit utilisation notification is included which issues low credit warning at the trader's WS when the available credit for a counterparty falls below a percentage that is defined via the TFA. An out of credit message is also displayed at the trader's WS when credit is exhausted for a particular counterparty. Prices from that counterparty, for all tenors, will no longer be displayed. A credit utilisation report may be
10 initiated, on demand, via the TFA for both screen and hard copy output.

Parameters used in the system

15 Banks initially define, and modify online, the following parameters which are stored at the local MAN for their local trading floor via the TFA facility;

- a) credit limit currency - Market Access Node
- b) a separate credit limit currency conversions rate parameter for each currency traded on the system
- c) a parameter related to the nature of at least one financial
20 instrument in the form of a currency volatility credit utilisation factor for each currency traded on the system. The currency volatility factor is indicative of the risk associated with each financial instrument assessed by the TFA.
- d) Time to Settlement credit utilisation factors for the currencies
25 traded on the local floor. The TTS factor is preferably non-linear and also not specific to any financial instrument traded.

Each credit group preferably comprises a plurality of trading floors. Anyone credit granting entity (which itself could be a trading
30 floor) may trade with a trading floor of a group defined by the TFA if sufficient credit is available.

- 21 -

Banks also define the following for each counterparty (credit group) that they trade with which are also stored at the local MAN;

- a) available credit
- b) low credit warning percentage.

Banks also have the following options for resetting credit utilisation to zero:

- a) Automatically at the end of the trading day, as is currently done for spot. The time of the end of the trading day for FRAs is preferably definable separately from that for FX spot.
- b) On demand via the TFA
 - 1) for an individual credit group
 - 2) for all credit groups

The TFA also has the ability to disallow particular floors within a credit group. If a floor is disallowed, it does not take part in the credit of that group.

To be compatible, each of the two parties must make sufficient credit available to the other party to complete a trade for at least the predetermined minimum size deal in any available currency (ie, available credit at least equal to the minimum credit threshold established by the respective credit granting entity).

The calculation is thus:

Minimum credit threshold =

Maximum of {(minimum 3 month equivalent amount) x (credit TTS utilisation factor) x (# of months in gap) x (Interest rate volatility factor) x (conversion rate)} for each currency.

The TFA also has the ability to set the following parameters:

a) Notional Amount Increment

The notional amount increment is a system-wide parameter (per currency) specifying the increment between notional amount values specified during order submission. All orders submitted into the system must have a notional amount that is a multiple of this value. This parameter is specified in absolute terms.

b) Price Increment

The price increment specifies the granularity between prices for orders submitted into the system. The increment is defined for each tenor or tenor category defined in the database of valid FRA instruments.

The granularity of prices are defined as a global parameter for each tenor or category of tenors defined in the database of valid FRA instruments. This must be modifiable in order to change the granularity to meet the needs of the marketplace. It is expected that after introduction of EBS FRAs, the spreads will narrow in the market and we will need to reduce the price granularity accordingly.

The granularity may be designated as a decimal value representing one hundred-thousandth of a basis point. It is assumed that fractions including $\frac{1}{2}$ and $\frac{1}{4}$ basis point may be designated by the decimal values 5000 and 25000. The system must be able to support granularity up to 0.03125 (equivalent to $\frac{1}{32}$). The number of digits show in the fractions of a basis point display should also be defined for each tenor in the valid tenor database.

c) Minimum Notional Amount

The minimum notional amount is a system-wide

parameter specified for each currency that specifies the minimum notional amount of an order submitted or outstanding in the system. If the remaining amount of an order falls below this value, then the remaining amount is cancelled. This value is expressed in three-month-equivalent terms.

d) Maximum Notional Amount

The maximum notional amount is a system-wide parameter (per currency) that specifies the maximum notional amount of an order submitted into the system. This value is expressed in three-month-equivalent terms.

e) Red Quote Threshold

The red quote threshold specifies a percentage of credit-compatible floors which each would at least partially hit the quote in question if it placed an order for the regular amount at the displayed regular dealable price. If that threshold percentage is met or exceeded for a particular quote, the quote in question is identified as a "Red Quote" on the maker's display. This value is a single system-wide parameter for all instruments being traded.

f) Large Difference Threshold

The large difference threshold specifies the difference (per currency) between a price entered by a trader and the current dealable price required to activate the large difference validation warning.

g) Regular Amount

The regular amount for a given tenor is used in the calculation of the regular dealable prices. This parameter is defined for each currency.

h) Wide Spread Threshold

The wide spread threshold specifies the maximum difference (per currency) in price between the trader entered price and the best dealable price on the other side of the market.

Having set these parameters, the matching process refers to these when executing matches.

Derivation of the Pre-Authorisation Matrix

The exemplary Pre-Authorisation Matrix shown in Fig 6 is derived from the various parameters described above. In the example shown, each group comprises one trading floor.

Certain prices are said to be dealable, which means that they are prescreened for credit. A dealable price means that sufficient bilateral credit is available with the counterparty making the price to execute at least one minimum size trade in the tenor that utilises the most credit.

The concept of dealable prices for FRAs is based on credit compatibility for all tenors. Therefore two trading floors are said to be credit compatible if they have bilaterally allocated enough credit to each other to execute one minimum size trade in the tenor that utilises the most credit available on the system.

For each FRA currency a 3 month minimum notional amount is set as a system parameter. The formula to calculate the minimum size for any tenor is;

$$\text{minimum size} = (\text{3 month minimum notional amount}) / (\# \text{ months in gap} / 3)$$

Example:

EBS has defined the 3 month minimum notional amount = USD 50 mill

- 25 -

The minimum size for a USD Jun 98= $(50 \text{ mill})/(3/3) = \text{USD } 50 \text{ mill}$

The minimum size for a USD Sep98-6= $(50 \text{ mill})/(6/3) = \text{USD } 25 \text{ mill}$

Since credit utilisation is a function of;

- 5 1. time between trade date and settlement date (TTS)
2. time between settlement and maturity (gap)
3. the volatility of interest rates in the currency of the FRA

then for two floors to be credit compatible they must have sufficient credit available to execute a trade for a minimum size in the tenor with the highest calculated utilisation.

10 This should mean that, subject to credit changing during deal completion, the two parties will be able to complete a deal in any currency at least of minimum size.

 A trading floor can control, to an extent, the minimum credit threshold necessary to display dealable prices by modifying time to settlement factors with times to settlement that utilise the most credit. For example, a floor can specify time to settlement factors which do not increase for those factors beyond where they want to trade. Also, a floor can set the currency conversion to zero for particular currencies thus electing not to trade in volatile currencies offered on EBS, thus reducing the credit availability necessary to see prices in less volatile currencies.

25

Example:

 The system of the present embodiment allows trading in tenors ranging from 0x1 out to 24x27 in USD, DEM, GBP, and JPY. The minimum trade size defined is set as USD 50 million (3 month equivalent notional value).

30

- 26 -

In the following case, for floor A to see dealable prices from floor B they must allocate sufficient credit to execute one trade in USD for a minimum notional size 50 million.

5 Trading floor A uses USD as their credit limit currency.
 Trading floor A is only trading USD FRAs
 Trading floor A has assigned a currency volatility factor to USD of 0.5%.

10 For floor A to see prices from floor B, it must allocate sufficient credit to floor B to execute one USD Mar 00 (24 months away) for USD 50 mil.

 The minimum credit is calculated as follows (the TTS factor is assumed to be the square root of the TTS):
 minimum available credit = $(4,4889) * (0.005) * (50,000,000)$
15 = \$1,122,225.

 Having thus calculated the minimum credit threshold, the Market Access Node then calculates for each potential counterparty whether at least the minimum order size could be dealt by checking against the credit limit available for the Credit Group associated with that
20 counterparty, and transmits a CreditUpdate message to the affected Arbitrator(s) and Market Distributor(s) containing a simple binary indication of whether credit is currently available or not available to each designated potential counterparty in an amount at least equal to
25 the calculated minimum credit threshold established by the credit granting entity associated with that Market Access Node. Provided that the relevant threshold has been met, the Arbitrator(s) and Market Distributor(s) receiving the CreditUpdate message place a "1" in the associated cell of their Pre-Authorisation Matrix. Conversely, if the
30 CreditUpdate message indicates that the available credit is below the

- 27 -

relevant threshold, the Arbitrator(s) and Market Distributor(s) receiving the CreditUpdate message place a "0" in the associated cell.

The Pre-Authorisation Matrix is then used in known fashion to pre-screen distributed buy/sell orders so that only "dealable" prices are shown to traders.

Fig 7 shows the flow of electronic messages relating to the distribution of customised Dealable price information to each trading floor. As noted previously, although a distributed order matching system with more than one Arbitrator is shown, many aspects of the invention are equally applicable to a more centralized system with only one Arbitrator; alternatively, a single arbitrator could be dedicated to all trades involving a discrete subset of the available financial instruments. The trader at WS A1a1 of trading floor A1a generates a Quote submit message to the trading floor's MAN (MAN A1a) in the form of a bid, offer, buy or sell. The MAN in turn logs the Quote submit and forwards the Quote submit message to the Maker's Arbitrator Node (ARB A) whose assigned geographical trading region includes the Maker's trading floor A1a1. In turn, ARB A updates an ordered list of available bids and an ordered list of available offers for the relevant tenors, each ranked by price and time of receipt (preferably at the Maker's ARB), and containing data fields for indicating the Quantity, and the quantity reserved by the Arbitrator pending completion or failure of a pending deal resulting from a potential match initiated by the Arbitrator and not yet confirmed by the Maker and Taker. A corresponding Quote available message is then transmitted from the Maker's ARB A to the MD's in its trading region MD A1, MD A2, and to the other ARB's for eventual distribution to the MD's and MAN's of other trading regions.

Each MAN (for example, MAN A1b) also transmits a Credit update message to its associated ARB (ARB A) whenever the credit status for any of its potential counterparties (for example, A1a or A2a) changes from CreditAvailable to CreditNotAvailable or vice versa, which

the ARB then retransmits to its affected MD's and to the other affected ARB's.

The MD's then use the information in the received Credit update messages to maintain the Pre-Authorisation Matrix such as that shown in Fig 6. The rows and columns of the Pre-Authorisation Matrix PM are associated with the various trading floors A1a, A1b, A2a, etc (including any floors in other trading regions) and for each ordered pair of trading floors $\{TF_i, TF_j\}$ contains an indication as to whether TF_i has extended any credit to TF_j . In the depicted example, credit exists on a bilateral basis between TFA1 and TFA2, no credit exists between TFA1 and TFB1, and credit has been extended unilaterally from TFA2 and TFB1, but not vice versa (as indicated by the "1" at the intersection of row TFB1 with column TFA2 and the "0" at the corresponding intersection of column TFB1 with row TFA2). From the main diagonal of the Pre-Authorisation Matrix it can be seen that only TFA2 permits its own traders to trade between themselves, as indicated by the "1" at the intersection of row TFA2 with column TFA2. Preferably, each MD only maintains a partial Pre-Authorisation Matrix containing data only regarding credit extended from or to its associated MAN's to the other potential counterparties (MAN's) in the system. Thus, as indicated in Fig 6 by cross hatching, some of the Pre-Authorisation Matrix entries may be blank.

The MD's use the Quote available messages to update their own ordered lists of available bids and offers; these ordered lists and the above-described Pre-Authorisation Matrix are then used by the MD to calculate separate Dealt prices for each trading floor which are transmitted as MarketView messages to the affected MAN's.

To update the Pre-Authorisation Matrix, each MAN transmits a Pre-Authorisation Matrix update message to an Arbitrator which then stores this in a Pre-Authorisation Matrix used as part of deal matching. The Arbitrator also distributes the update message to other Market

- 29 -

Distributors where Pre-Authorisation Matrices are stored for pre-screening prices.

CreditUpdate messages are sent in any situation in which the Pre-Authorisation Matrix should be changed, such as:

- 5 (i) If the credit available itself has changed because of completed deals.
- (ii) if the TFA adjusts the credit limit.
- (iii) If the TFA adjusts any of the parameters from which the credit threshold is derived.
- 10 (iv) All of the trading floor's credit limits are reset.

In addition, the DealStatus message sent at the end of each deal includes an indication of the Pre-Authorisation Matrix status for the counterparty with which the deal was completed. This is to ensure that
15 a rematch is not attempted if the credit status has changed.

Deal matching process

For completeness, the deal matching process is described. A match is not allowed to proceed if the credit utilisation as calculated
20 exceeds the available credit set by the TFA. Thus, even though prescreened for credit, a further check of bids, offers, buy and sell order credit compatibility is done as part of deal matching.

Orders that are *compatible* are matched by the dealing system. Newly submitted bid and buy orders are matched against outstanding
25 offer orders. Newly submitted sell and offer orders are matched against outstanding bid orders.

A new bid or buy order is *compatible* to an existing offer or sell order if all of the following conditions are true:

- The orders are for the same tenor.
- 30 • The trade floors of the orders are *credit compatible* with respect to this order - or - the trade floors of the two orders are identical.

- 30 -

- The price of the bid or buy order is greater than or equal to the offer or sell order.
- The amounts of both orders are greater than or equal to the 3-month-equivalent of the system defined *minimum notional amount* parameter.

5

The process by which all orders are matched is called the "automatch" process as shown in Fig 8. Any order submitted into the system is first matched against all existing bids and offers at the maker's Arbitrator. The existing orders are considered in price/time order in search of compatible orders. If a compatible order is found, the two orders are "matched" and a deal is initiated for the amount equal to the minimum of the two order amounts. The process continues until the remaining three-month-equivalent amount of the submitted order becomes less than the value of the minimum notional amount parameter, or until there are no compatible orders.

10

15

If the remaining three-month-equivalent amount of the submitted order is less than the value of the minimum notional amount parameter, the submitting workstation is informed accordingly and the order is cancelled.

20

When a newly submitted order is not completely filled during the automatch process, the order becomes either a bid or offer in the dealing system's collection of outstanding orders. The amount of the outstanding order is equal to the amount that was not matched during the automatch process.

25

In order to complete a deal initiated during the automatch process, the dealing system must then verify in known fashion that both of the matched orders have not been removed by the trader and that there remains sufficient credit available to complete at least a system defined minimum deal size.

30

- 31 -

The final deal amount is lesser of the initial deal amount, the available credit from the first floor (or other associated first credit granting entity) to the second floor (or other associated first Credit Group), and the available credit from the second floor (or other associated second credit granting entity) to the second floor (or other associated second Credit Group). If any of these amounts is less than the 3-month-equivalent of the minimum notional amount parameter, then the matching process for this deal fails.

When an order is submitted and one or more deals is initiated, the price closest to the newly submitted order, tenor identification, and the combined amounts of all deals must be displayed on all trader workstations that have requested to view information of this type.

For example, a trader submits a USD Sep 97 sell order for \$50 million at 5.6725 while the best dealable bid price is 5.6750. The trader's order is immediately matched for the following deals:

10 @ 5.6750 CITL
10 @ 5.6750 BBIL
10 @ 5.6750 ABNL
10 @ 5.6725 BOAL

An exemplary EBS deals notification includes the following information:

- Current Time (GMT): 12:34
- Tenor Identification: Sep97
- Price: 5.6725

Orders may be matched between dealers at the same trading floor, therefore the dealing system provides capabilities for intra-floor dealing. This feature is not optional. When an order is submitted into the system, no special priority is given to try to match the order with

- 32 -

outstanding orders from the same trading floor. All deals - regardless of intra-floor dealing - are matched in price/time priority.

The prices obtained by any match will be the best dealable price, if this is available after credit screening, followed by the best regular price once all the amount at the best dealable price is matched. The reason for this is because of the way in which quotes are ordered in the system. The quotes of the parties without sufficient credit to pass credit screening are removed from the list of current quotes, and the best dealable price of the remaining quotes is selected. All the quotes at this price are then aggregated and displayed. If the best dealable price is greater than 50M USD then this is also shown as the best regular price.

Deal completion process

The deal completion procedure is also shown in Fig 8, and is described for completeness only and is not central to the aspect of credit screening.

After a deal is initiated it is considered pending until the floors notify their Arbitrators of the deal's status or the deal times out. The maker floor notifies its Arbitrator with the DealStatusMaker message, the taker with the DealStatusTaker message. The taker Arbitrator is made aware of the maker deal status when the Market Processor sends it a copy. If the deal did not succeed (perhaps due to insufficient credit) the floors send the DealFailed message.

The deal status reflects whether the deal was actually performed and what the amount of the deal was. The amount could be different from the initial amount of the deal due to credit restrictions. The Market processor records the deal information. If the deal was executed for an amount smaller than the original amount, the remaining amount may be available for another match.

- 33 -

The Dealt amount will be increased by the final amount of the deal done. The Pending amount will be reduced by the original amount of the deal.

5 If the quote involved in the deal is local the Market Processor notifies other Arbitrators of the amount done with the QteAmtDone message. The Arbitrator that hit the quote is not notified. This is done by QuoteAdjust function. It also sends MktQteAmtUnreserved message to the Market Distributors. This function is also called when the Arbitrator times out on DealStatus messages from either the maker or
10 the taker Market Access Node.

Any newly available amount in the quote is activated. The QuoteActivateAmt function uses the quote's currently available amount and the quote's price to update the dealable aggregate of the submitter of the quote and those of the submitter's trading partners.

15 A bid and a sell request are described as compatible if amongst other factors respective trading floors have credit with each other (as evidenced by the yes/no Pre-Authorisation Matrix) and the price of the bid is greater than or equal to the price of the sell request.

A deal may involve one or two Arbitrators. An Arbitrator not
20 participating in a deal will be called passive (with respect to that deal).

An Arbitrator frequently needs to broadcast information related to a specific deal to all passive Arbitrators and to all local Market Distributors. For convenience, we will term this group the passive components (in relation to a given deal and Arbitrator).

- 25
1. The new maker's Workstation sends a QteSubmit message to its Market Access Node. The MAN sends the QteSubmit message to its Arbitrator.
 2. The new maker's Arbitrator detects the opportunity to automatch and selects a compatible existing quote.

- 34 -

3. If the existing quote is not from a local maker, the new maker's Arbitrator sends the HitQte message to the existing maker's Arbitrator.
4. The existing maker's Arbitrator receives the HitQte message. It responds immediately with a HitQteAck message specifying the deal ID and the actual amount of the quote allocated to the request (this amount could be zero or less than the requested amount if the quote was interrupted or hit by another new maker). If the allocated amount is non-zero, the existing maker's Arbitrator creates a new entry in its Pending Deals list, sends a HitNotify message to the existing maker's MAN, and broadcasts the QteAmtReserved message to all passive Arbitrators and the MktAmtReserved message to the Market Distributors in its region.
5. The existing maker's MAN checks for sufficient credit with the counterparty. If the credit limit is not sufficient to process the entire deal amount, the MAN reduces the deal amount to the limit amount. If no credit is available at all, the deal is aborted at this step and the DealFailed message is sent to the Arbitrator indicating the reason of the failure. (The existing maker's Arbitrator notifies the new maker's Arbitrator and the affected Market Distributors by sending CreditUpdate message. It then forwards the DealFailed message to the new maker's Arbitrator and broadcasts the QteAmtDone message to all passive Arbitrators and the MktQteAmtUnreserved message to local Market Distributors).
6. The existing maker's MAN reduces the credit limit for the counterparty by the amount of the pending deal.
7. The existing maker's MAN sends the HitAmount message to the maker's Workstation. If the trader has not interrupted the quote, he is notified that a deal is pending and his ability to interrupt the

- 35 -

amount of the quote being hit is removed. In either case, the Workstation responds with the HitAmountAck message to the existing maker's MAN. If the quote has been interrupted, the MAN cancels the deal, restores the existing maker's credit limit.

- 5 8. The existing maker's MAN logs the pending deal.
9. The existing maker's MAN sends the DealVerify message to the new maker's MAN.
10. The new maker's man receives the DealVerify message and checks the existing maker's credit limit. If the credit limit is not
10 sufficient to process the entire deal amount, the MAN reduces the deal amount to the limit amount. (If no credit is available at all, the deal is cancelled and the new maker's MAN sends only messages DealStatusTaker and DealVerifyAck described below with the deal amount set to zero).
11. The new maker's MAN reduces the existing maker's credit limit
15 by the amount of the deal.
12. The new maker's MAN logs the deal.
13. The new maker's MAN sends the DealStatusTaker message to its Arbitrator, including any credit updates. (If the credit
20 relationship between maker and taker has changed the Arbitrator updates its Pre-Authorisation Matrix and notifies the other Arbitrators and the taker's Market Distributor via CreditUpdate and MktCreditUpdate messages, respectively).
14. The new maker's MAN sends the DealVerifyAck message to the
25 existing maker's MAN and the DealDoneWS message to the taker's Workstation. The messages specify the final deal amount.
15. The existing maker's MAN receives the DealVerifyAck message. If the deal amount has been reduced on the new maker's side,
30 the maker's MAN readjusts the new maker's credit limit. The existing maker's MAN logs the deal.

- 36 -

16. The existing maker's MAN sends the DealStatusMaker message to the maker's Arbitrator with any credit updates.
17. The existing maker's Arbitrator receives the DealStatusMaker message and forwards it to the new maker's Arbitrator. If the DealStatusMaker message indicates that the credit relationship between existing maker and new maker has changed, the existing maker's Arbitrator updates its Pre-Authorisation Matrix and notifies the other Arbitrators and local Market Distributors via CreditUpdate and MktCreditUpdate messages, respectively.
18. The existing maker's Arbitrator notifies passive Arbitrators about the deal by sending the QteAmtDone messages. If the final deal amount is different from the amount originally requested from the maker's MAN, the existing maker's Arbitrator also broadcasts the QteAmtUnreserved message to the local Market Distributors.
19. The existing maker's MAN sends the DealDoneWS message to the existing maker's Workstation.
20. The existing maker's MAN sends the InstructionsMaker message to the new maker's MAN.
21. The new maker's MAN receives the InstructionsMaker message and sends the InstructionsTaker message to the maker's MAN and the InstrLoggedTaker message to the new maker's Workstation.
22. The existing maker's MAN receives the InstructionsTaker message and sends the InstrLoggedMaker message to the existing maker's Workstation.

Settlement terms mismatch

In addition to verification that sufficient credit is available, the settlement terms are also checked bilaterally to ensure no mis-match occurs. Possible settlement terms are FRABBA, ISDA, "either" (which

- 37 -

will match either FRABBA or ISDA), and "none" (which results in an automatic mis-match).

As a trading floor parameter, each trading floor must be able to maintain a list of counterparties that have ISDA agreements with that trading floor. Deals between floors which have mutually designated each other as having ISDA (or both ISDA and FRABBA) agreements will have the text "ISDA" printed on the two deal tickets in the "Settlement Terms" field. Deals between floors whose FRABBA/ISDA designations do not match will have the text "mismatch" printed on the deal tickets in this field. All other deals will result in deal tickets with the text "FRABBA" printed in the "Settlement Terms" field.

In the event of a mis-match between the floors, the deal on which the mis-match occurs is completed, but each trading floor disallowed from further trading with the other until the mis-match is resolved.

Other Price Screening

We have appreciated that prices could be screened using the Pre-Authorisation Matrix shown in Fig 6 for other criteria. In particular the Pre-Authorisation Matrix could be used to designate whether the settlement terms of two parties match. Thus, by using the Pre-Authorisation Matrix in the manner described, prices would only be shown if there is an agreement of settlement terms between the two parties. Other Pre-Authorisation Matrices are also possible, and may be used in conjunction with the embodiment of the invention described.

Credit Maintenance

The Credit Group Maintenance screen shown in Fig 9 includes Existing Credit Groups showing the credit groups already created and has pushbuttons to create, delete or modify the groups. When an Existing Credit Group is highlighted (or a new Credit Group is being created), the Credit Group Profile shows the Credit Threshold

- 38 -

calculated as described above as well as the Current Available Balance for the selected group, and permits the Trading Floor Administrator ("TFA") to modify the Warning Percentage, Default Available Balance (which will become the new Available Balance whenever the TFA (or the
5 system) resets all the credit limits), and/or to make a positive or negative Adjustment to the displayed Current Available Balance. An Assign Pushbutton allows the TFA to modify the assignment of trading floors to the selected groups.

Claims

1. A computerised trading system for trading financial instruments between traders at trader terminals, comprising:

5 a communication network for transmitting electronic messages between the trader terminals,

a plurality of trader terminals connected to the communication network, each trader terminal being associated with a credit granting entity, and each trader terminal comprising means for generating price quotation messages in respect of financial instruments,

10 the communication network comprising:

a credit store for storing an indication of credit available from each credit granting entity,

15 a distributor for distributing the price quotation messages to trader terminals for display,

a credit filter arranged to filter the price quotation messages to each trader terminal associated with at least one credit granting entity,

20 wherein the credit filter is so arranged that only the prices indicated by price quotation messages for which it is determined with reference to the credit store that a minimum credit threshold is available on a bilateral basis from and to the one credit granting entity are displayed at the trader terminals associated therewith, the minimum credit threshold being at least equal to the available credit required by the one credit granting entity to complete a trade of a predetermined minimum size,

25 wherein a separate minimum credit threshold is established for each credit granting entity and is derived from a function of at least one parameter specific to each credit granting entity and related to the nature of at least one financial instrument being traded.

- 40 -

2. A computerised trading system for trading financial instruments according to claim 1, wherein the at least one parameter is a factor indicative of an estimated risk associated with each financial instrument traded.

5

3. A computerised trading system for trading financial instruments according to any preceding claim, wherein the at least one parameter is a volatility factor for each type of financial instrument traded.

10

4. A computerised trading system for trading financial instruments according to any preceding claim, wherein the minimum credit threshold is also derived from a second parameter indicative of a conversion rate for each type of financial instrument traded.

15

5. A computerised trading system for trading financial instruments according to any preceding claim, wherein the minimum credit threshold is also derived from a third parameter which is a factor based on the time to settlement of any financial instrument traded, and is not specific to any one currency.

20

6. A computerised trading system for trading financial instruments according to claim 5, wherein the third parameter is a factor based on the longest time to settlement of any financial instrument traded.

25

7. A computerised trading system for trading financial instruments according to any preceding claim, wherein the minimum credit threshold is the maximum value of credit thresholds calculated for a plurality of different financial instruments traded.

30

8. A computerised trading system for trading financial instruments according to any preceding claim, wherein the minimum credit threshold

- 41 -

is the maximum value of a function of a minimum order size, a conversion factor, a time to settlement factor and a volatility factor, for each of the financial instruments being traded.

5 9. A computerised trading system for trading financial instruments according to any preceding claim, wherein the financial instrument is a Forward Rate Agreement.

10 10. A computerised trading system for trading financial instruments according to any preceding claim, wherein each credit granting entity comprises a trading floor.

15 11. A computerised trading system for trading financial instruments according to any preceding claim, wherein a plurality of trader terminals are associated with at least one group to which the at least one credit granting entity extends credit.

20 12. A computerised trading system for trading financial instruments according to claim 11, wherein the at least one group comprises a plurality of trader terminals associated with a single credit granting entity.

25 13. A computerised trading system for trading financial instruments according to claims 11 or 12, wherein at least one group comprises a plurality of trader terminals associated with a plurality of credit granting entities.

30 14. A computerised trading system for trading financial instruments according to any of claims 11 to 13, wherein the indication of credit available from the at least one credit granting entity is to the at least one

- 42 -

group and is decremented after each trade between that credit granting entity and that group.

15. A computerised trading system for trading financial instruments according to claim 14, wherein the indication of credit available from the at least one credit granting entity to the at least one group is decremented by an amount derived as a function of the deal size and the at least one parameter specific to the at least one credit granting entity.

16. A computerised trading system for trading financial instruments according to claims 14 or 15, wherein the indication of credit is decremented by a function of a volatility factor for each type of financial instrument traded.

17. A computerised trading system for trading financial instruments according to any of claims 14 to 16, wherein the indication of credit is decremented by a function of a conversion rate for each type of financial instrument traded.

18. A computerised trading system for trading financial instruments according to any of claims 14 to 17, wherein the indication of credit is decremented by a function of a time to settlement of the financial instrument traded.

19. A computerised trading system for trading financial instruments according to any of claims 14 to 18, wherein the indication of credit is decremented by a function of a time between a settlement date and a maturity date of the financial instrument traded .

18

TDP

TIC

TL

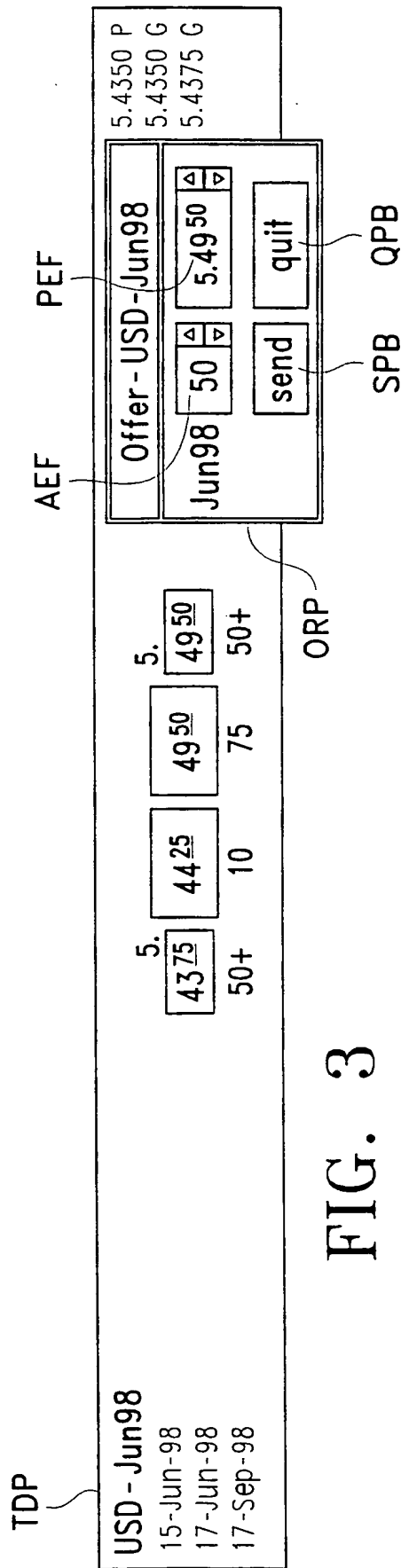
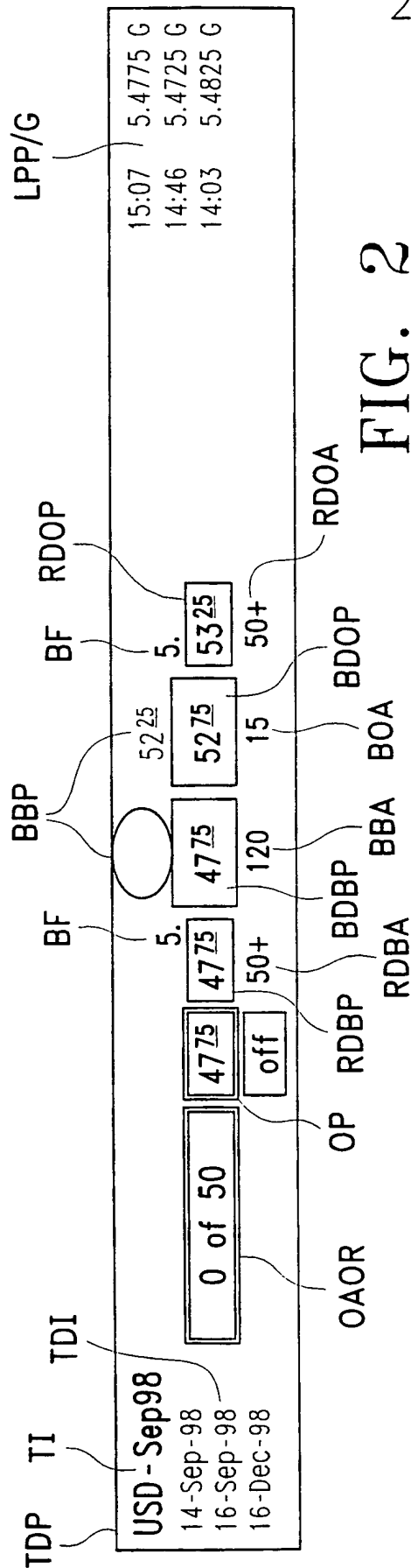
TDL

EDL

TM

FIG. 1

<input type="radio"/> BBS		ABNL-FRA		<input type="button" value="Buy"/> <input type="button" value="Bid"/> <input type="button" value="Offer"/> <input type="button" value="Sell"/>		<input type="button" value="Select All"/> <input type="button" value="Clear All"/> <input type="button" value="Off All"/>	
USD - Sep98							
14-Sep-98		0 of 70		5. 85.50		5. 89.00	
16-Sep-98		85.50		50+ 70		85.50	
16-Dec-98		off		50+ 10		clear	
USD IMM		JPY IMM		GBP IMM		DEM IMM	
Jun98		5. 40 78.25 82.25 90		EBS & TFA		EBS Deals	
Sep98		5. 70 85.50 89.00 10		09:37 XEU Jun98 4.3600 G		09:32 B 10 5.7800 CITN USD Jun98	
Dec98		5. 10 97.75 00.75 70		09:37 JPY Sep98 0.6625 G		09:33 S 50 3.7275 UBSN DBM Jun98	
Mar99		5. 90 97.75 00.75 50		09:37 USD Sep98 6.0400 P		09:33 B 50 6.0075 UBSN USD Dec98	
Jun99		6. 140 00.25		09:37 GBP Sep98 6.4800 G		09:33 B 30 5.8175 UBSN USD Jun98	
Sep99		6. 20 04.00 08.25 70		09:37 JPY Dec98 1.0700 G		09:33 B 70 5.8900 UBSN USD Sep98	
Dec99		6. 30 14.50 18.25 80		09:37 GBP Mar99 6.8500 G		09:33 B 15 6.0100 UBSN USD Mar99	
Mar00		6. 80 07.25 10.75 60		09:37 USD Jun99 6.0075 G		09:33 B 20 5.8175 UBSN USD Jun98	
Order Limit		200		200		200	
TFA Messages		EBS Deals		EBS & TFA		Trader Deals	
09:37 JPY Dec98 0.7025 G		09:37 XEU Sep98 3.8750 G		09:37 JPY Dec98 1.0700 P		09:34 B 50 5.8950 CITN USD Sep98	
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09:37 GBP Sep99 6.4800 P		09:37 USD Sep98 3.8700 G		09:37 JPY Dec98 1.0700 P		09:36 S 20 6.1425 UBSN USD Dec99	
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09:37 GBP Sep99 6.4800 P		09:37 USD Sep98 3.8700 G		09:37 JPY Dec98 1.0700 P		09:36 S 20 6.1425 UBSN USD Dec99	
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09:37 USD Jun99 6.0025 G		09:37 XEU Sep98 3.8700 G		09:37 JPY Dec98 1.0700 P		09:36 S 20 6.1425 UBSN USD Dec99	
09:37 GBP Sep99 6.4800 P		09:37 USD Sep98 3.8700 G		09:37 JPY Dec98 1.0700 P		09:36 S 20 6.1425 UBSN USD Dec99	
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09:37 USD Jun99 6.0025 G		09:37 XEU Sep98 3.8700 G		09:37 JPY Dec98 1.0700 P		09:36 S 20 6.1425 UBSN USD Dec99	
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09:37 USD Jun99 6.0025 G		09:37 XEU Sep98 3.8700 G		09:37 JPY Dec98 1.0700 P		09:36 S 20 6.1425 UBSN USD Dec99	



ST

USD IMM	JPY IMM	GBP IMM
Jun98	5. 80 44 50 49 00 10	✓
Sep98	5. 80 48 25 52 25 20	✓
Dec98	5. 30 69 25 73 50 60	✓
Mar99	5. 20 56 25 55 00 10	✓
Jun99	5. 10 46 50 50 75 60	
Sep99	5. 70 63 00 67 75 90	
Dec99	5. 20 44 75 49 75 60	
Mar00	5. 50 26 25 30 75 60	
Order Limit		
0 of 200 200		

OLNA

Bid-Strip: (4) USD

Jun98	200	5. 4.00
Sep98	200	5. 48 25
Dec98	200	5. 69 25
Mar99	200	5. 56 25

send quit

11:41 USD Mar99 5.5550 G
11:42 XEU Sep98 4.4700 G
11:45 DEM Dec99 4.4475 G

TFA Messages

OLTB

MORP

GSB

FIG. 4

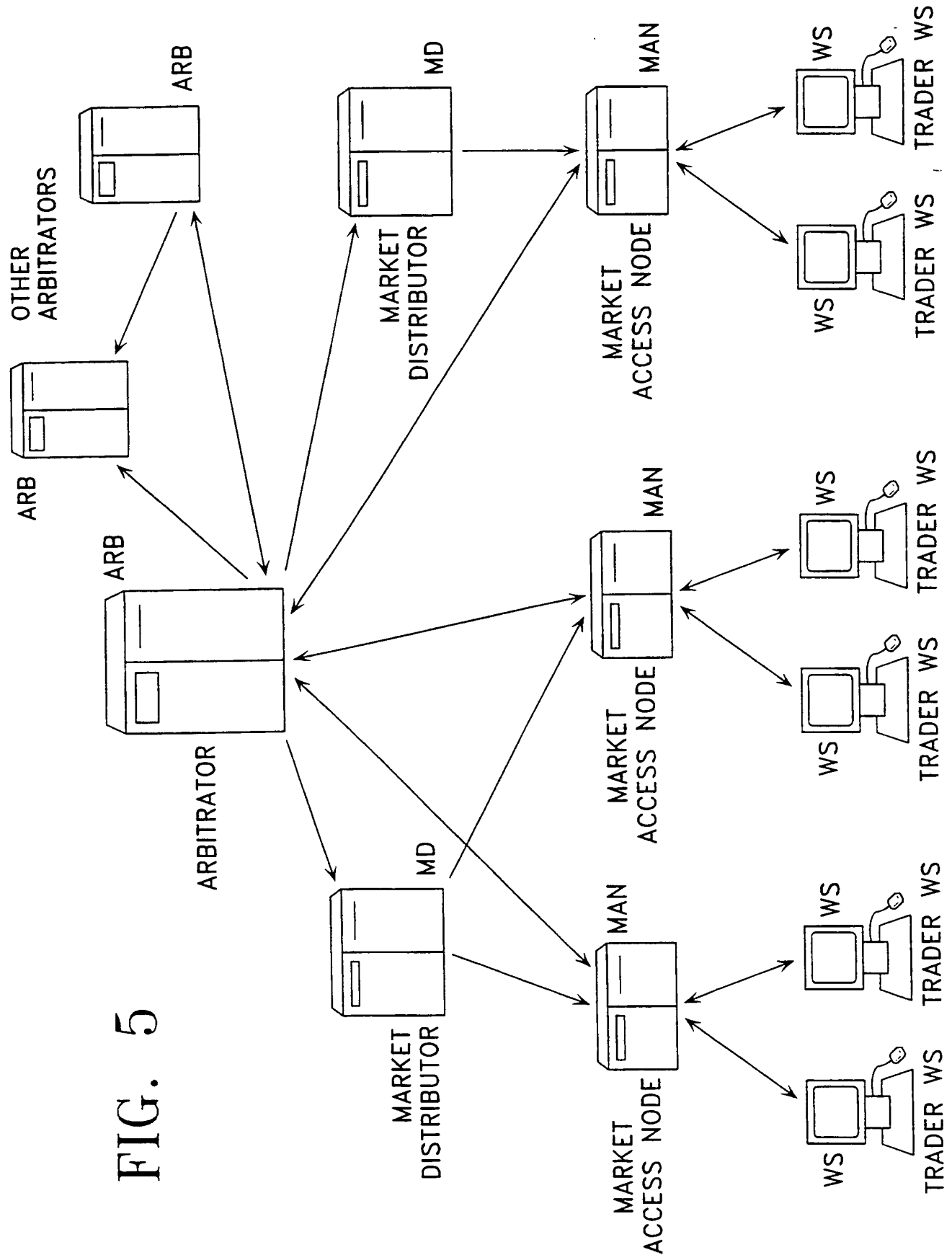
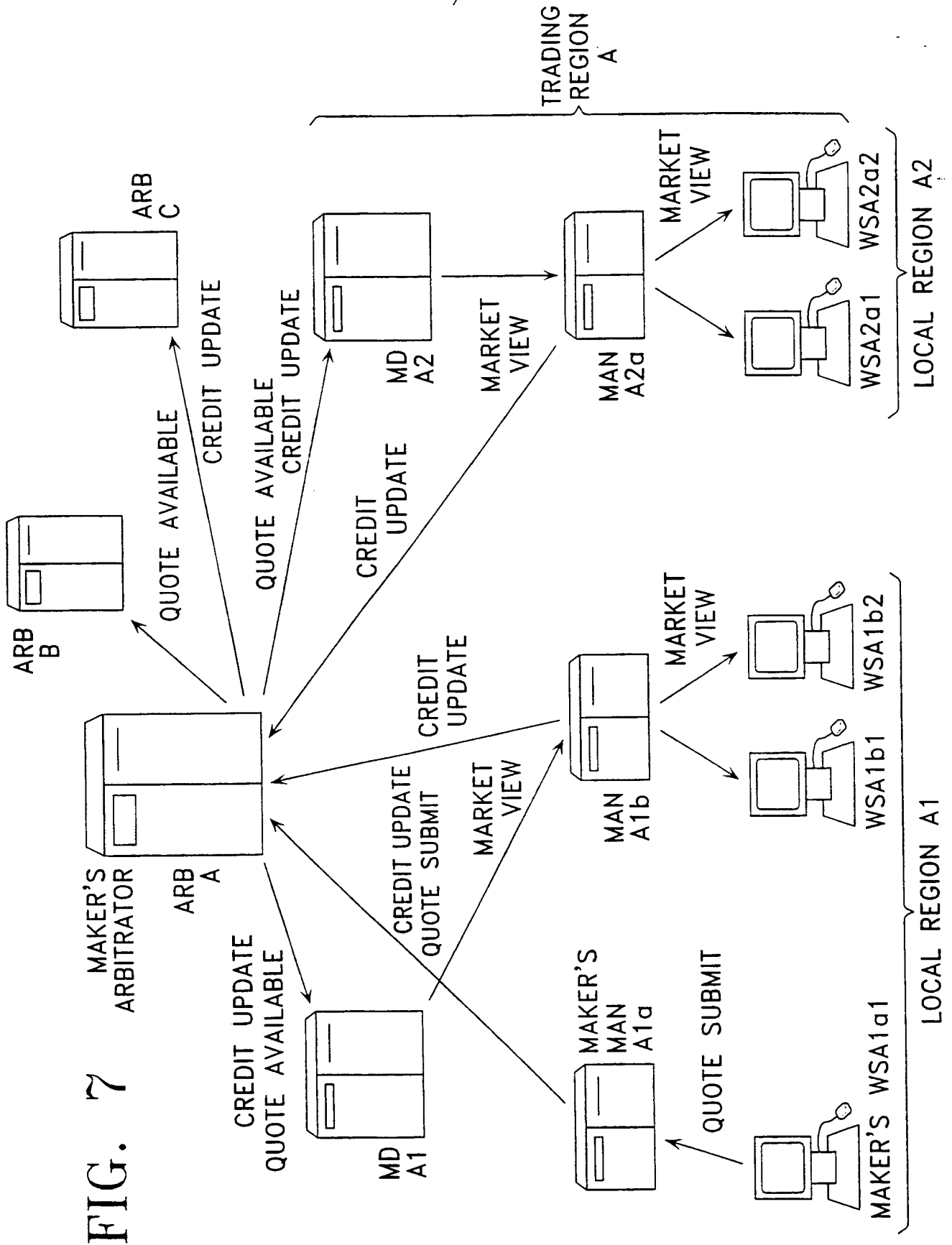
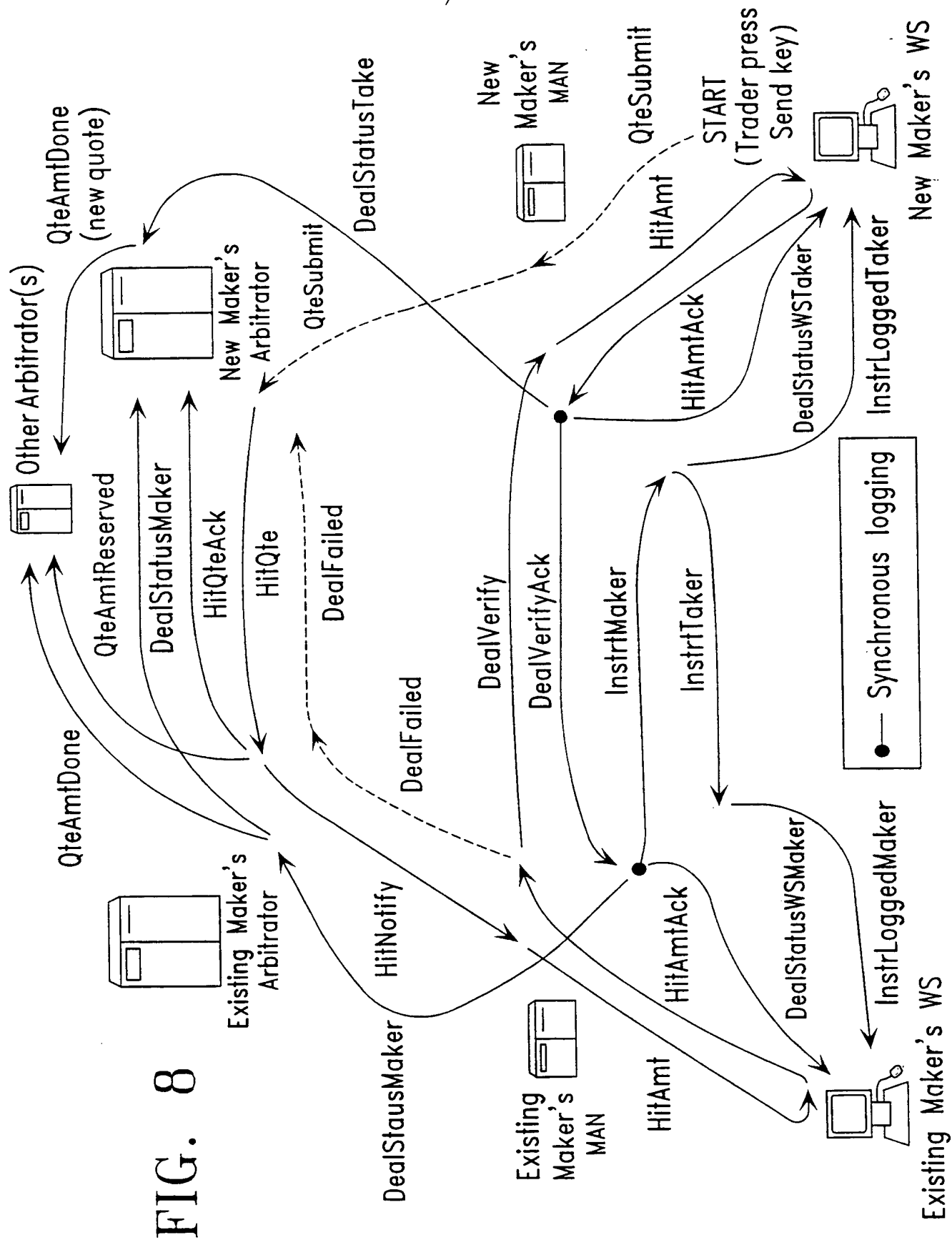


FIG. 5

		TO			
FLOOR		TFA1	TFA2	TFB1	TFB2
FROM	TFA1	0	1	0	1
	TFA2	1	1	0	1
	TFB1	0	1		
	TFB2	1	0		

FIG. 6





CGM

CGP

Credit Group Maintenance:

Existing Credit Groups:

CITI
ONEGRP
TWO GROUP

Credit Group Profile:

Name: CITI

Warning Percentage: 75 WP

Current Available Balance[B]: 999 CAB

Default Available Balance[B]: 999 DAB

Adjustment [B]: 0 ADJ

Credit Threshold: 1 CT

assign AP

add change delete quit PB

ECG

FIG. 9

INTERNATIONAL SEARCH REPORT

National Application No.

PCT/US 98/19196

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 99 19821 A (DERIVATIVES NET INC ;MAY R RAYMOND (US)) 22 April 1999 see page 6, line 26 - page 11, line 30 see page 16, line 18 - page 19, line 15 see page 42, line 2 - page 44, line 8 see page 50, line 11 - line 24 ----	1-19
X	EP 0 512 702 A (REUTERS LTD) 11 November 1992 see page 2, line 8 - line 10 see page 2, line 49 - page 3, line 8 see page 4, line 31 - line 43 see page 5, line 21 - line 48 see page 7, line 16 - line 48 ----- -/--	1-19

☒ Further documents are listed in the continuation of box C.

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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

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- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

2 June 1999

Date of mailing of the international search report

09/06/1999

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

Pedersen, N

INTERNATIONAL SEARCH REPORT

Original Application No

PCT/US 98/19196

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 96 05563 A (REUTERS LTD) 22 February 1996 see page 4, line 3 - page 5, line 2 see page 6, line 24 - page 9, line 12 see page 12, line 12 - page 20, line 8 ---</p>	1-11
A	<p>US 5 375 055 A (DUNNE MICHAEL F ET AL) 20 December 1994 cited in the application see column 5, line 1 - column 6, line 54 see figures 1,5 -----</p>	1-19

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/19196

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9919821 A	22-04-1999	NONE	
EP 0512702 A	11-11-1992	JP 6096359 A	08-04-1994
WO 9605563 A	22-02-1996	AU 697236 B	01-10-1998
		AU 3531395 A	07-03-1996
		AU 9825498 A	25-02-1999
		CA 2197768 A	22-02-1996
		EP 0776505 A	04-06-1997
		GB 2294788 A	08-05-1996
		JP 10504409 T	28-04-1998
US 5375055 A	20-12-1994	AT 151899 T	15-05-1997
		AU 3605493 A	01-09-1993
		CA 2129250 A	05-08-1993
		DE 69309905 D	22-05-1997
		DE 69309905 T	23-10-1997
		DK 625275 T	20-10-1997
		EP 0625275 A	23-11-1994
		ES 2103467 T	16-09-1997
		JP 2768828 B	25-06-1998
		JP 7506916 T	27-07-1995
		SG 46664 A	20-02-1998
		WO 9315467 A	05-08-1993
		US 5806050 A	08-09-1998

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6047-111 (986)	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 98/ 19196	International filing date (day/month/year) 11/09/1998	(Earliest) Priority Date (day/month/year)
Applicant EBS DEALING RESOURCES, INC. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

9

☐ None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of it m 5 of the first sheet)

COMPUTERIZED TRADING SYSTEM FOR TRADING FINANCIAL INSTRUMENTS HAVING A COMMUNICATION NETWORK CONNECTING TRADERS DEALING IN FINANCIAL INSTRUMENTS AND A PLURALITY OF TRADER TERMINALS CONNECTED TO THE COMMUNICATION NETWORK. THE COMMUNICATION NETWORK COMPRISES A CREDIT STORE FOR STORING AN INDICATION OF CREDIT AVAILABLE FROM EACH CREDIT GRANTING ENTITY, A PRICE DISTRIBUTOR FOR DISTRIBUTING THE PRICE QUOTATION MESSAGES TO TRADER TERMINAL FOR DISPLAY, A CREDIT FILTER TO FILTER THE PRICE QUOTATION MESSAGES TO EACH TRADER TERMINAL ASSOCIATED WITH AT LEAST ONE CREDIT GRANTING ENTITY.

INTERNATIONAL SEARCH REPORT

International Application No

T/US 98/19196

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 99 19821 A (DERIVATIVES NET INC ;MAY R RAYMOND (US)) 22 April 1999 see page 6, line 26 - page 11, line 30 see page 16, line 18 - page 19, line 15 see page 42, line 2 - page 44, line 8 see page 50, line 11 - line 24 ---	1-19
X	EP 0 512 702 A (REUTERS LTD) 11 November 1992 see page 2, line 8 - line 10 see page 2, line 49 - page 3, line 8 see page 4, line 31 - line 43 see page 5, line 21 - line 48 see page 7, line 16 - line 48 --- -/--	1-19

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

2 June 1999

Date of mailing of the international search report

09/06/1999

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

Pedersen, N

INTERNATIONAL SEARCH REPORT

International Application No

T/US 98/19196

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 96 05563 A (REUTERS LTD) 22 February 1996 see page 4, line 3 - page 5, line 2 see page 6, line 24 - page 9, line 12 see page 12, line 12 - page 20, line 8 -----</p>	1-11
A	<p>US 5 375 055 A (DUNNE MICHAEL F ET AL) 20 December 1994 cited in the application see column 5, line 1 - column 6, line 54 see figures 1,5 -----</p>	1-19

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/19196

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9919821	A	22-04-1999	NONE		
EP 0512702	A	11-11-1992	JP	6096359 A	08-04-1994
WO 9605563	A	22-02-1996	AU	697236 B	01-10-1998
			AU	3531395 A	07-03-1996
			AU	9825498 A	25-02-1999
			CA	2197768 A	22-02-1996
			EP	0776505 A	04-06-1997
			GB	2294788 A	08-05-1996
			JP	10504409 T	28-04-1998
US 5375055	A	20-12-1994	AT	151899 T	15-05-1997
			AU	3605493 A	01-09-1993
			CA	2129250 A	05-08-1993
			DE	69309905 D	22-05-1997
			DE	69309905 T	23-10-1997
			DK	625275 T	20-10-1997
			EP	0625275 A	23-11-1994
			ES	2103467 T	16-09-1997
			JP	2768828 B	25-06-1998
			JP	7506916 T	27-07-1995
			SG	46664 A	20-02-1998
			WO	9315467 A	05-08-1993
			US	5806050 A	08-09-1998



REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

Receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) 6047-111 (986989)

Box No. I TITLE OF INVENTION

COMMUNICATION OF CREDIT FILTERED PRICES IN AN ELECTRONIC BROKERAGE SYSTEM

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

EBS DEALING RESOURCES, INC.

535 Madison Avenue, 24th Floor

New York, New York 10022

United States of America

☐ This person is also inventor.

Telephone No.
+1 212 521 4600

Facsimile No.

Teleprinter No.

State (that is, country) of nationality:
US

State (that is, country) of residence:
US

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

MILLS, Gregory D.

33 Felch Road

Florham Park, New Jersey 07932-2119

United States of America

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:
US

State (that is, country) of residence:
US

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☒ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent ☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

MAY, John M.

FULBRIGHT & JAWORSKI L.L.P.

865 South Figueroa Street, 29th Floor

Los Angeles, California 90017-2576

United States of America

Telephone No.
+1 213 892 9200

Facsimile No.
+1 213 680 4518

Teleprinter No.

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

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|--|--|
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| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> BR Brazil | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> NO Norway |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SK Slovakia |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> GW Guinea-Bissau | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> IS Iceland | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> ZW Zimbabwe |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | |
| <input checked="" type="checkbox"/> KR Republic of Korea | |
| <input checked="" type="checkbox"/> KZ Kazakhstan | |
| <input checked="" type="checkbox"/> LC Saint Lucia | |
| <input checked="" type="checkbox"/> LK Sri Lanka | |
| <input checked="" type="checkbox"/> LR Liberia | |

Check-boxes reserved for designating States (for the purposes of a national patent) which have become party to the PCT after issuance of this sheet:

☐
☐

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)

Continuation of Box No. III FURTHER APPLICANTS AND/OR (FURTHER) INVENTOR(S)*If none of the following sub-boxes is used, this sheet is not to be included in the request.*

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

JAIN, Neena
3756 Victory Street
South Plainfield, New Jersey 07932-2119
United States of America

This person is:

- ☐ applicant only
☒ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:
US

State (that is, country) of residence:
US

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

HOWORKA, Edward R.
2043 Gates Court
Morris Plains, New Jersey 07950
United States of America

This person is:

- ☐ applicant only
☒ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:
PL

State (that is, country) of residence:
US

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- ☐ applicant only
☐ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- ☐ applicant only
☐ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on another continuation sheet.

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:* regional Office	international application: receiving Office
item (1)				
item (2)				
item (3)				

☐ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) *(only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office)* identified above as item(s): _____

* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(iii)). See Supplemental Box.

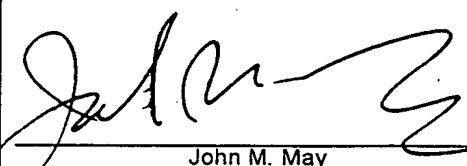
Box No. VII INTERNATIONAL SEARCHING AUTHORITY	
Choice of International Searching Authority (ISA) <i>(if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):</i> ISA/ EP	Request to use results of earlier search; reference to that search <i>(if an earlier search has been carried out by or requested from the International Searching Authority):</i> Date (day/month/year) Number Country (or regional Office)

Box No. VIII CHECK LIST: LANGUAGE OF FILING	
This international application contains the following number of sheets: request : 4 description (excluding sequence listing part) : 38 claims : 4 abstract : drawings : 9 sequence listing part of description : Total number of sheets : 55	This international application is accompanied by the item(s) marked below: 1. <input checked="" type="checkbox"/> fee calculation sheet 2. <input type="checkbox"/> separate signed power of attorney 3. <input type="checkbox"/> copy of general power of attorney, reference number, if any: 4. <input type="checkbox"/> statement explaining lack of signature 5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s): 6. <input type="checkbox"/> translation of international application into (language): 7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material 8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form 9. <input checked="" type="checkbox"/> other (specify): Transmittal Letter

Figure of the drawings which should accompany the abstract: Fig. 9	Language of filing of the international application: English
--	--

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).


 John M. May Date: 11 September 1998

For receiving Office use only		2. Drawings: <input type="checkbox"/> received: <input type="checkbox"/> not received:
1. Date of actual receipt of the purported international application:		
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA/	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid	

For International Bureau use only
Date of receipt of the record copy by the International Bureau:

091786736

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 18 APR 2001

WIPO

PCT

Applicant's or agent's file reference P/3331-26	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US98/19196	International filing date (day/month/year) 11 SEPTEMBER 1998	Priority date (day/month/year) NONE
International Patent Classification (IPC) or national classification and IPC GO6F 17/60 705/35, 37, 39		RECEIVED SEP 12 2001
Applicant EBS DEALING RESOURCES, INC.		Technology Center 2100

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

**CORRECTED
VERSION**

Date of submission of the demand 10 MARCH 2000	Date of completion of this report 02 JANUARY 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer <i>Pigeon Hamed</i> TARIQ R. HAFIZ
Facsimile No. (703) 305-3230	Telephone No. (703) 305-9643

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US98/19196

I. Basis of the report

1. With regard to the elements of the international application: *

☐ the international application as originally filed☒ the description:

pages (See Attached)

, as originally filed

pages , filed with the demand

pages , filed with the letter of

☒ the claims:

pages (See Attached)

, as originally filed

pages , as amended (together with any statement) under Article 19

pages , filed with the demand

pages , filed with the letter of

☒ the drawings:

pages (See Attached)

, as originally filed

pages , filed with the demand

pages , filed with the letter of

☒ the sequence listing part of the description:

pages (See Attached)

, as originally filed

pages , filed with the demand

pages , filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☒ The amendments have resulted in the cancellation of:☒ the description, pages 29☒ the claims, Nos. NONE☒ the drawings, sheets/fig NONE5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US98/19196

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. statement

Novelty (N)	Claims <u>1-19</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>5-6</u>	YES
	Claims <u>1-4, 7-19</u>	NO
Industrial Applicability (IA)	Claims <u>1-19</u>	YES
	Claims <u>NONE</u>	NO

2. citations and explanations (Rule 70.7)

Claims 1-4 and 7-19 lack of inventive step under PCT Article 33(3) as being obvious over Togher et al (Hereinafter referred to Togher US 5,375,055) in view of Silverman et al (Hereinafter referred to Silverman US 5,136,501).

As per claim 1 and 7-8, Togher discloses a computerized trading system for trading financial instruments between traders at trader terminals, comprising:

A communication network for transmitting electronic messages between the trader terminals (col. 5, lines 1-9).

A plurality of trader terminals connected to the communication network, each trader terminal being associated with a credit granting entity, and each trader terminal comprising means for generating price quotation messages in respect of financial instruments (col 5, lines 10-24).

The communication network comprising:

A credit store for storing an indication of credit available from each credit granting entity (col. 5, lines 9-15 and col. 6, lines 23-35).

A distributor for distributing the price quotation messages to trader terminals for display (col. 5, lines 5-17, 35-39 and col. 6, lines 23-32).

A credit filter arranged to filter the price quotation messages to each trader terminal associated with at least one credit granting entity (col. 7, lines 53-60).

Wherein the credit filter is so arranged that only the prices indicated by price quotation messages for which it is determined with reference to the credit store that a minimum credit threshold is available on a bilateral basis from and to the one credit granting entity are displayed at the trader terminals associated therewith, the minimum credit threshold being at least equal to the available credit required by

the one credit granting entity to complete a trade of a predetermined minimum size (col. 8, lines 1-18).

Togher et does not explicitly disclose "wherein a separate minimum credit threshold is established for each credit granting entity and is derived from a function of at least one parameter specific to each credit granting entity and related to the nature of at least one financial instrument being traded". Silverman et (Continued on Supplemental Sheet.)

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

I. BASIS OF REPORT:

This report has been drawn on the basis of the description,
page(s) 1-38, as originally filed.
page(s) NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the claims,
page(s) 40-42, as originally filed.
page(s) NONE, as amended under Article 19.
page(s) NONE, filed with the demand.
and additional amendments:
39, filed with the letter of 27 October 2000

This report has been drawn on the basis of the drawings,
page(s) 1-9, as originally filed.
page(s) NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the sequence listing part of the description:
page(s) NONE, as originally filed.
pages(s) NONE, filed with the demand.
and additional amendments:
NONE

V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):

al disclose an anonymous matching system that discloses a minimum credit threshold for trading parties (col. 19, lines 33-57). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to use the credit threshold of Silverman with the prediction teachings of Togher. In so doing, the credit management for electronic brokerage system of Togher would be able to take advantage of the efficiency proposed by Silverman to warn a trading party when a credit limit goes below a predetermined value.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 11

As per claim 2, Togher does not explicitly disclose wherein the at least one parameter is a factor indicative of an estimated risk associated with each financial instrument traded. However, Silverman discloses determining a risk for a matching transaction (col. 9, lines 2-20). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the determining risk of Silverman with the disclosure of Togher. In so doing, the credit management for electronic brokerage of Togher would be able to take advantage of the efficiency proposed by Silverman in order to provide his clients with all risks involved in doing a trade for a financial instrument.

As per claim 3, the combination of Togher does not explicitly disclose a volatility factor. However, Official Notice is taken that it is old and well known in the trading industry to use volatility factor for a traded instrument. It would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to include a volatility factor into the disclosure of Togher and Silverman. In so doing, Togher and Silverman would be able to properly assess the risks involved when trading a particular instrument.

As per claim 4, the combination of Togher and Silverman does not explicitly disclose a second parameter indicative of a conversion rate for each type of financial instrument traded. However, it would have been obvious to a person of ordinary skill in the art to indicate a parameter indicative of a conversion rate for a type of financial instrument traded for the motivation of determining how much a foreign currency is worth when performing trading transactions.

As per claim 9, the combination of Togher and Silverman does not explicitly disclose "wherein the financial instrument is a Forward Rate Agreement". Official Notice is taken that a financial instrument being a Forward Rate Agreement is old and well known in the trading art. It would have been obvious to a person of ordinary skill in the art to use a financial instrument as a Forward Rate Agreement for the motivation of securing a trading financial instrument rate between two trading parties.

As per claim 10, Togher discloses a credit management for electronic brokerage comprising each credit granting entity comprises a trading floor (col. 5, lines 1-18).

As per claim 11, Togher discloses a credit management for electronic brokerage comprising wherein a plurality of trader terminals are associated with at least one group to which the at least one credit granting entity extends credit (col. 7, lines 53-60).

As per claim 12, Togher discloses a credit management for electronic brokerage comprising, wherein the at least one group comprises a plurality of trader terminals associated with a single credit granting entity (col. 5, lines 1-18).

As per claim 13, Togher discloses a credit management for electronic brokerage comprising a credit granting entity (see claim 1 above) but does not explicitly disclose a plurality of credit granting entities. However, it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to use a plurality of credit granting entities into Togher for the motivation of making the Togher's system more versatile.

As per claim 14, Togher discloses a credit management for electronic brokerage system comprising wherein the indication of credit available from the at least one credit granting entity is to the at least one group and is decremented after each trade between that credit granting entity and that group (col. 8, lines 19-29).

As per claim 15, Togher discloses a credit management for electronic brokerage system comprising wherein the indication of credit available from the at least one credit granting entity to the at least one group is decremented by an amount derived as a function of the deal size and the at least one parameter specific to the at least one credit granting entity (col. 8, lines 19-29).

As per claim 16-19, the combination of Togher and Silverman does not explicitly disclose wherein the indication of credit is decremented by a function of a volatility, a conversion rate, a function of a time to settlement of the financial instrument, a time between a settlement date and a maturity date of the financial instrument traded factor for each type of financial instrument traded. However, it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to include these features into Togher and Silverman when performing trading transactions. Doing so, would allow Togher and Silverman to filter out all bids and ask prices entered by users of the system, thereby reducing costs and risks of trading financial instruments.

Claims 5 and 6 meets the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest wherein the minimum credit threshold is also derived from a third parameter which is a factor based on the time to settlement of any financial instrument traded, and is not specific to any one currency, and wherein the third parameter is a factor based on the longest time to settlement of any financial instrument traded.

----- NEW CITATIONS -----

US 5,136,501 A (SILVERMAN et al) 04 August 1992, See entire document.

US 5,375,055 A (TOGHER et al) 20 December 1994, See entire document.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US98/19196

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 12

Claims

1. A computerised trading system for trading financial instruments between traders at trader terminals, comprising:

5 a communication network for transmitting electronic messages between the trader terminals,

a plurality of trader terminals connected to the communication network, each trader terminal being associated with a credit granting entity, and each trader terminal comprising means for generating price quotation messages in respect of financial instruments,

10 the communication network comprising:

a credit store for storing an indication of credit available from each credit granting entity,

a distributor for distributing the price quotation messages to trader terminals for display,

15 a credit filter arranged to filter the price quotation messages to each trader terminal associated with at least one credit granting entity,

wherein the credit filter is so arranged that only the prices indicated by price quotation messages for which it is determined, with reference to the credit store and a credit utilization factor, that a
20 minimum credit threshold is available on a bilateral basis from and to the one credit granting entity are displayed at the trader terminals associated therewith, the minimum credit threshold being at least equal to the available credit required by the one credit granting entity to complete a trade of a predetermined minimum size, the credit utilization factor being
25 determined by the credit filter for each credit granting entity as a function of at least one parameter specific to each credit granting entity and the nature of at least one financial instrument being traded.

P/3331-26

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:
WILLIAM O. GRAY III
OSTROLENK, FABER GERB & SOFFEN
1180 AVENUE OF THE AMERICA
NEW YORK, NY 10036 8403

JUN 20 2000

NOTIFICATION OF RECEIPT
OF DEMAND BY COMPETENT INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY

(PCT Rules 59.3(e) and 61.1(b), first sentence
and Administrative Instructions, Section 601(a))

Date of mailing
(day/month/year) 16 JUN 2000

Applicant's or agent's file reference P/3331-26		IMPORTANT NOTIFICATION	
International application No. PCT/US98/19196	International filing date (day/month/year) 11 SEP 98	Priority date (day/month/year)	
Applicant EBS DEALING RESOURCES, INC.			

1. The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

10 MAR 2000

2. That date of receipt is:

- ☒ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).
- ☐ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).
- ☐ the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details, see the *PCT Applicant's Guide*, Volume II.

- ☐ (If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

OFGS FILE No. P/3331-26

SIW

Name and mailing address of the IPEA/ Assistant Commissioner for Patent Box PCT Washington, D.C. 20231 Attn:RO/US Facsimile No. 703-305-3230	Authorized officer Sonya D. Barnes Telephone No. 703-305-3665
--	---

PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

To:

GRAY, William, O.
Ostrolenk, Faber, Gerb & Soffen
1180 Avenue of the Americas
New York, NY 10036-8403
ETATS-UNIS D'AMERIQUE

**INFORMATION CONCERNING ELECTED
OFFICES NOTIFIED OF THEIR ELECTION**

(PCT Rule 61.3)

Date of mailing (day/month/year) 27 June 2000 (27.06.00)		IMPORTANT INFORMATION	
Applicant's or agent's file reference P/3331-26			
International application No. PCT/US98/19196	International filing date (day/month/year) 11 September 1998 (11.09.98)	Priority date (day/month/year)	
Applicant EBS DEALING RESOURCES, INC. et al			

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

AP : GH, GM, KE, LS, MW, SD, SZ, UG, ZW

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

National : AU, BG, BR, CA, CN, CZ, DE, IL, JP, KP, KR, MN, NO, NZ, PL, RO, RU, SE, SK, US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

OA : BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

National : AL, AM, AT, AZ, BA, BB, BY, CH, CU, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IS, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MW, MX, PT, SD, SG, SI, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW

3. The applicant is reminded that he must enter the "national phase" before the expiration of 30 months from the priority date before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed until 31 months from the priority date for all States designated for the purposes of obtaining a European patent.

OFGS FILE NO.

P/3331-26

5/14

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:

Marja Kirchner,

Telephone No. (41-22) 338.83.38

From the INTERNATIONAL BUREAU

PCT

**NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES**

(PCT Rule 47.1(c), first sentence)

To:

MAY, John, M.
Fulbright & Jaworski, L.L.P.
29th floor
865 South Figueroa Street
Los Angeles, CA 90017-2576
ETATS-UNIS D'AMERIQUE

RECEIVED

APR 3 - 2000

Date of mailing (day/month/year) 23 March 2000 (23.03.00)		
Applicant's or agent's file reference 8047-111 (986)		IMPORTANT NOTICE JAWORSKI
International application No. PCT/US98/19196	International filing date (day/month/year) 11 September 1998 (11.09.98)	Priority date (day/month/year)
Applicant EBS DEALING RESOURCES, INC. et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AU, CN, JP, KP, KR, US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
AL, AM, AP, AT, AZ, BA, BB, BG, BR, BY, CA, CH, CU, CZ, DE, DK, EA, EE, EP, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, OA, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 23 March 2000 (23.03.00) under No. WO 00/16224.

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Genève 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
--	---

RECEIVED NOV 30 1998

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF RECEIPT
OF SEARCH COPY

(PCT Rule 25.1)

To:

FULBRIGHT & JAWORSKI L.L.P.
Attn. MAY, J.
865 South Figueroa Street
29th Floor
Los Angeles, California 90017-2576
UNITED STATES OF AMERICA

Date of mailing
(day/month/year)

23/11/1998

Applicant's or agent's file reference

6047-111 (986)

IMPORTANT NOTIFICATION

International application No.

PCT/US 98/19196

International filing date (day/month/year)

11/09/1998

Priority date (day/month/year)

Applicant

EBS DEALING RESOURCES, INC. et al.

1. Where the International Searching Authority and the Receiving Office are not the same office:

The applicant is hereby notified that the search copy of the international application was received by this International Searching Authority on the date indicated below.

Where the International Searching Authority and the Receiving Office are the same office:

The applicant is hereby notified that the search copy of the international application was received on the date indicated below.

28/10/1998

(date of receipt).

- 2.
- ☐
- The search copy was accompanied by a diskette containing nucleotide and/or amino acid sequence listings.

3. Time limit for establishment of International Search Report

The applicant is informed that the time limit for establishing the International Search Report is 3 months from the date of receipt indicated above or 9 months from the priority date, whichever time limit expires later

= 9 Aug 99

4. A copy of this notification has been sent to the International Bureau and, where the first sentence of paragraph 1 applies, to the Receiving Office.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

ISA/EP

PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF RECEIPT OF
RECORD COPY

(PCT Rule 24.2(a))

To:

MAY, John, M.
Fulbright & Jaworski, L.L.P.
29th floor
865 South Figueroa Street
Los Angeles, CA 90017-2576
ÉTATS-UNIS D'AMÉRIQUE

RECEIVED NOV 17 1998

Date of mailing (day/month/year) 29 October 1998 (29.10.98)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 6047-111 (1986)	International application No. PCT/US98/19196

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

EBS DEALING RESOURCES, INC. (for all designated States except US)

MILLS, Gregory, D. et al (for US)

International filing date : 11 September 1998 (11.09.98)

Priority date(s) claimed :

Date of receipt of the record copy
by the International Bureau : 29 October 1998 (29.10.98)

List of designated Offices :

AP : GH,GM,KE,LS,MW,SD,SZ,UG,ZW

EA : AM,AZ,BY,KG,KZ,MD,RU,TJ,TM

EP : AT,BE,CH,CY,DE,DK,ES,FI,FR,GB,GR,IE,IT,LU,MC,NL,PT,SE

OA : BF,BJ,CF,CG,CI,CM,GA,GN,GW,ML,MR,NE,SN,TD,TG

National : AL,AM,AT,AU,AZ,BA,BB,BG,BR,BY,CA,CH,CN,CU,CZ,DE,DK,EE,ES,FI,GB,GE,GH,GM,
HR,HU,ID,IL,IS,JP,KE,KG,KP,KR,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MN,MW,MX,NO,NZ,PL,
PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,UA,UG,US,UZ,VN,YU,ZW

ATTENTION

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

- ☒ time limits for entry into the national phase
- ☐ confirmation of precautionary designations
- ☐ requirements regarding priority documents

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. (41-22) 740.14.35</p>	<p>Authorized officer:</p> <p>Kari Huynh-Khuong</p> <p>Telephone No. (41-22) 338.83.38</p>
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From the INTERNATIONAL SEARCHING AUTHORITY

PCTNOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

RECEIVED JUN 16 1999

To:

FULBRIGHT & JAWORSKI L.L.P.
Attn. MAY, J.
865 South Figueroa Street
29th Floor
Los Angeles, California 90017-2576
UNITED STATES OF AMERICADate of mailing
(day/month/year)

09/06/1999

Applicant's or agent's file reference

6047-111 (986)

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No.

PCT/US 98/19196

International filing date
(day/month/year)

11/09/1998

Applicant

EBS DEALING RESOURCES, INC. et al.

DOCKETED FOR
7-9-99
8-9-99CA
AME

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority

European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Lucia Van Pinxteren

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6047-111 (986)	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 98/ 19196	International filing date (day/month/year) 11/09/1998	(Earliest) Priority Date (day/month/year)
Applicant EBS DEALING RESOURCES, INC. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.

9



None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 98/ 19196

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

COMPUTERIZED TRADING SYSTEM FOR TRADING FINANCIAL INSTRUMENTS HAVING A COMMUNICATION NETWORK CONNECTING TRADERS DEALING IN FINANCIAL INSTRUMENTS AND A PLURALITY OF TRADER TERMINALS CONNECTED TO THE COMMUNICATION NETWORK. THE COMMUNICATION NETWORK COMPRISES A CREDIT STORE FOR STORING AN INDICATION OF CREDIT AVAILABLE FROM EACH CREDIT GRANTING ENTITY, A PRICE DISTRIBUTOR FOR DISTRIBUTING THE PRICE QUOTATION MESSAGES TO TRADER TERMINAL FOR DISPLAY, A CREDIT FILTER TO FILTER THE PRICE QUOTATION MESSAGES TO EACH TRADER TERMINAL ASSOCIATED WITH AT LEAST ONE CREDIT GRANTING ENTITY.

INTERNATIONAL SEARCH REPORT

International Application No

/US 98/19196

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 99 19821 A (DERIVATIVES NET INC ;MAY R RAYMOND (US)) 22 April 1999 see page 6, line 26 - page 11, line 30 -see page 16, line 18 - page 19, line 15 see page 42, line 2 - page 44, line 8 see page 50, line 11 - line 24 ---	1-19
X	EP 0 512 702 A (REUTERS LTD) 11 November 1992 see page 2, line 8 - line 10 see page 2, line 49 - page 3, line 8 see page 4, line 31 - line 43 see page 5, line 21 - line 48 see page 7, line 16 - line 48 --- -/--	1-19

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

2 June 1999

Date of mailing of the international search report

09/06/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Pedersen, N

INTERNATIONAL SEARCH REPORT

International Application No.

T/US 98/19196

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 05563 A (REUTERS LTD) 22 February 1996 see page 4, line 3 - page 5, line 2 see page 6, line 24 - page 9, line 12 see page 12, line 12 - page 20, line 8 ---	1-11
A	US 5 375 055 A (DUNNE MICHAEL F ET AL) 20 December 1994 cited in the application see column 5, line 1 - column 6, line 54 see figures 1,5 -----	1-19

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/19196

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9919821	A	22-04-1999	NONE		
EP 0512702	A	11-11-1992	JP	6096359 A	08-04-1994
WO 9605563	A	22-02-1996	AU	697236 B	01-10-1998
			AU	3531395 A	07-03-1996
			AU	9825498 A	25-02-1999
			CA	2197768 A	22-02-1996
			EP	0776505 A	04-06-1997
			GB	2294788 A	08-05-1996
			JP	10504409 T	28-04-1998
US 5375055	A	20-12-1994	AT	151899 T	15-05-1997
			AU	3605493 A	01-09-1993
			CA	2129250 A	05-08-1993
			DE	69309905 D	22-05-1997
			DE	69309905 T	23-10-1997
			DK	625275 T	20-10-1997
			EP	0625275 A	23-11-1994
			ES	2103467 T	16-09-1997
			JP	2768828 B	25-06-1998
			JP	7506916 T	27-07-1995
			SG	46664 A	20-02-1998
			WO	9315467 A	05-08-1993
			US	5806050 A	08-09-1998

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

GRAY, William, O.
Ostrolenk, Faber, Gerb & Soffen
1180 Avenue of the Americas
New York, NY 10036-8403
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year) 11 April 2000 (11.04.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference P/3331-26	
International application No. PCT/US98/19196	International filing date (day/month/year) 11 September 1998 (11.09.98)

1. The following indications appeared on record concerning:

☐ the applicant ☐ the inventor ☒ the agent ☐ the common representative

Name and Address MAY, John, M. Fulbright & Jaworski, L.L.P. 29th floor 865 South Figueroa Street Los Angeles, CA 90017-2576 United States of America	State of Nationality	State of Residence
	Telephone No. 213 892 9200	
	Facsimile No. 213 680 4518	
	Teleprinter No.	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☒ the person ☒ the name ☒ the address ☐ the nationality ☐ the residence

Name and Address GRAY, William, O. Ostrolenk, Faber, Gerb & Soffen 1180 Avenue of the Americas New York, NY 10036-8403 United States of America	State of Nationality	State of Residence
	Telephone No. 212 382 0700	
	Facsimile No. 212 398 0681	
	Teleprinter No.	

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

<input checked="" type="checkbox"/> the receiving Office	<input checked="" type="checkbox"/> the designated Offices concerned
<input type="checkbox"/> the International Searching Authority	<input type="checkbox"/> the elected Offices concerned
<input type="checkbox"/> the International Preliminary Examining Authority	<input checked="" type="checkbox"/> other: former agent

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Kari Huynh-Khuong Telephone No.: (41-22) 336.83.38
---	---

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ US

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty.

For International Preliminary Examining Authority use only	
Identification of IPEA	Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION	
Applicant's or agent's file reference P/3331-26	
International application No. PCT/US98/19196	International filing date (day/month/year) September 11, 1998 (11.09.98)
(Earliest) Priority date (day/month/year)	
Title of invention COMMUNICATION OF CREDIT FILTERED PRICES IN AN ELECTRONIC BROKERAGE SYSTEM	
Box No. II -APPLICANT(S)	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) EBS DEALING RESOURCES, INC. 535 Madison Avenue, 24th Floor New York, New York 10022 United States of America	
Telephone No.:	
Facsimile No.:	
Teleprinter No.:	
State (i.e. country) of nationality: US	State (i.e. country) of residence: US
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) MILLS, Gregory D. 33 Felch Road Florham Park, New Jersey 07932-2119 United States of America	
State (i.e. country) of nationality: US	State (i.e. country) of residence: US
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) JAIN, Neena 3756 Victory Street South Plainfield, New Jersey 07932-2119 United States of America	
State (i.e. country) of nationality: US	State (i.e. country) of residence: US
<input type="checkbox"/> Further applicants are indicated on a continuation sheet.	

Continuation of Box No. II APPLICANT(S)

If none of the following sub-boxes is used, this sheet is not to be included in the demand.

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

HOWORKA, Edward R.
2043 Gates Court
Morris Plains, New Jersey 07950
United States of America

State (i.e. country) of nationality:

US

State (i.e. country) of residence:

US

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

State (i.e. country) of nationality:

State (i.e. country) of residence:

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

State (i.e. country) of nationality:

State (i.e. country) of residence:

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

State (i.e. country) of nationality:

State (i.e. country) of residence:



Further applicants are indicated on another continuation sheet.

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The following person is ☒ agent ☐ common representative
and ☐ has been appointed earlier and represents the applicant(s) also for international preliminary examination.
☒ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.
☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Gray, III, William O.
Ostrolenk, Faber, Gerb & Soffen, LLP
1180 Avenue of the Americas
New York, New York 10036
United States of America

Telephone No.:

212 382 0700

Facsimile No.:

212 382 0888

Teleprinter No.:

☐ Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. IV STATEMENT CONCERNING AMENDMENTS

The applicant wishes the International Preliminary Examining Authority*

- (i) ☒ to start the international preliminary examination on the basis of the international application as originally filed.
- (ii) ☐ to take into account the amendments under Article 34 of
- ☐ the description (amendments attached).
 - ☐ the claims (amendments attached).
 - ☐ the drawings (amendments attached).
- (iii) ☐ to take into account any amendments of the claims under Article 19 filed with the International Bureau (a copy is attached).
- (iv) ☐ to disregard any amendments of the claims made under Article 19 and to consider them as reversed.
- (v) ☐ to postpone the start of the international preliminary examination until the expiration of 20 months from the priority date unless that Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Box No. V ELECTION OF STATES

☒ The applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)* except

(If the applicant does not wish to elect certain eligible States, the name(s) or country code(s) of those States must be indicated above.)

Box No. VI CHECK LIST

The demand is accompanied by the following documents for the purposes of international preliminary examination:

- | | | |
|--|---|--------|
| 1. amendments under Article 34 | | |
| description | : | sheets |
| claims | : | sheets |
| drawings | : | sheets |
| 2. letter accompanying amendments under Article 34 | : | sheets |
| 3. copy of amendments under Article 19 | : | sheets |
| 4. copy of statement under Article 19 | : | sheets |
| 5. other (specify): | : | sheets |

For International Preliminary Examining Authority use only

received not received

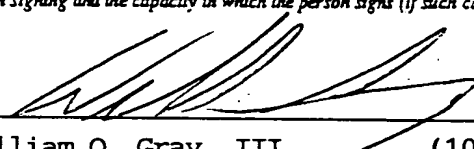
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

- | | |
|--|--|
| 1. <input checked="" type="checkbox"/> separate signed power of attorney | 4. <input checked="" type="checkbox"/> fee calculation sheet |
| 2. <input type="checkbox"/> copy of general power of attorney | 5. <input checked="" type="checkbox"/> other (specify): |
| 3. <input type="checkbox"/> statement explaining lack of signature | check no. 92295 in the amount of \$ 883 - ; Assignment |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

by 
William O. Gray, III (10.03.00)
March 10, 2000

For International Preliminary Examining Authority use only

- | | |
|--|---|
| 1. Date of actual receipt of DEMAND: | |
| 2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b): | |
| 3. <input type="checkbox"/> The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. | <input type="checkbox"/> The applicant has been informed accordingly. |
| 4. <input type="checkbox"/> The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5. | |
| 5. <input type="checkbox"/> Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82. | |

For International Bureau use only

Demand received from IPEA on:

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

SEP 05 2000

To: WILLIAM O. GRAY III
OSTROLENK, FABER GERB & SOFFEN
1180 AVENUE OF THE AMERICAS
NEW YORK, NY 10030

PCT-

WRITTEN OPINION

(PCT Rule 66)

OFCS FILE No.

P/333126

Date of Mailing
(day/month/year)

30 AUG 2000

Applicant's or agent's file reference

P/1331-26

REPLY DUE

within TWO months
from the above date of mailing

International application No.

PCT/US98/19196

International filing date (day/month/year)

11 SEPTEMBER 1998

Priority date (day/month/year)

NONE

International Patent Classification (IPC) or both national classification and IPC
IPC(7): G06F 17/60 and US Cl.: 705/35, 37, 39

Applicant

EBS DEALING RESOURCES, INC.

1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 11 JANUARY 2001

Name and mailing address of the IPEA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

TOD SWANN

Telephone No. (703) 308-9171

WRITTEN OPINION

International application No.

PCT/US98/19196

I. Basis of the opinion

1. With regard to the **elements** of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages _____ (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____ (See Attached) _____, as originally filed
pages _____, as amended (together with any statement) under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the drawings:
pages _____ (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the sequence listing part of the description:
pages _____ (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/ or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages _____ NONE _____
- ☒ the claims, Nos. _____ NONE _____
- ☒ the drawings, sheets/fig _____ NONE _____

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. statement**

Novelty (N)	Claims <u>1-19</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>5-6</u>	YES
	Claims <u>1-4, 7-19</u>	NO
Industrial Applicability (IA)	Claims <u>1-19</u>	YES
	Claims <u>NONE</u>	NO

2. citations and explanations

Claims 1-4 and 7-19 lack of inventive step under PCT Article 33(3) as being obvious over Togher et al (Hereinafter referred to Togher US 5,375,055) in view of Silverman et al (Hereinafter referred to Silverman US 5,136,501).

As per claim 1 and 7-8, Togher discloses a computerized trading system for trading financial instruments between traders at trader terminals, comprising:

A communication network for transmitting electronic messages between the trader terminals (col. 5, lines 1-9).

A plurality of trader terminals connected to the communication network, each trader terminal being associated with a credit granting entity, and each trader terminal comprising means for generating price quotation messages in respect of financial instruments (col. 5, lines 10-24).

The communication network comprising:

A credit store for storing an indication of credit available from each credit granting entity (col. 5, lines 9-15 and col. 6, lines 23-35).

A distributor for distributing the price quotation messages to trader terminals for display (col. 5, lines 5-17, 35-39 and col. 6, lines 23-32).

A credit filter arranged to filter the price quotation messages to each trader terminal associated with at least one credit granting entity (col. 7, lines 53-60).

Wherein the credit filter is so arranged that only the prices indicated by price quotation messages for which it is determined with reference to the credit store that a minimum credit threshold is available on a bilateral basis from and to the one credit granting entity are displayed at the trader terminals associated therewith, the minimum credit threshold being at least equal to the available credit required by

the one credit granting entity to complete a trade of a predetermined minimum size (col. 8, lines 1-18).

Togher et does not explicitly disclose "wherein a separate minimum credit threshold is established for each credit granting entity and is derived from a function of at least one parameter specific to each credit granting entity and related to the nature of at least one financial instrument being traded". Silverman et (Continued on Supplemental Sheet.)

WRITTEN OPINION

International application No.

PCT/US98/19196

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

TIME LIMIT:

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.

I. BASIS OF OPINION:

This opinion has been drawn on the basis of the description:

page(s) 1-38, as originally filed.

page(s) NONE, filed with the demand.

and additional amendments:

NONE

This opinion has been drawn on the basis of the claims:

page(s) 39-42, as originally filed.

page(s) NONE, as amended under Article 19.

page(s) NONE, filed with the demand.

and additional amendments:

NONE

This opinion has been drawn on the basis of the drawings:

page(s) 1-8, as originally filed.

page(s) NONE, filed with the demand.

and additional amendments:

NONE

This opinion has been drawn on the basis of the sequence listing part of the description:

page(s) NONE, as originally filed.

pages(s) NONE, filed with the demand.

and additional amendments:

NONE

V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):

al disclose an anonymous matching system that discloses a minimum credit threshold for trading parties (col. 19, lines 33-57). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to use the credit threshold of Silverman with the prediction teachings of Togher. In so doing, the credit management for electronic brokerage system of Togher would be able to take advantage of the efficiency proposed by Silverman to warn a trading party when a credit limit goes below a predetermined value.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 11

As per claim 2, Togher does not explicitly disclose wherein the at least one parameter is a factor indicative of an estimated risk associated with each financial instrument traded. However, Silverman discloses determining a risk for a matching transaction (col. 9, lines 2-20). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the determining risk of Silverman with the disclosure of Togher. In so doing, the credit management for electronic brokerage of Togher would be able to take advantage of the efficiency proposed by Silverman in order to provide his clients with all risks involved in doing a trade for a financial instrument.

As per claim 3, the combination of Togher does not explicitly disclose a volatility factor. However, Official Notice is taken that it is old and well known in the trading industry to use volatility factor for a traded instrument. It would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to include a volatility factor into the disclosure of Togher and Silverman. In so doing, Togher and Silverman would be able to properly assess the risks involved when trading a particular instrument.

As per claim 4, the combination of Togher and Silverman does not explicitly disclose a second parameter indicative of a conversion rate for each type of financial instrument traded. However, it would have been obvious to a person of ordinary skill in the art to indicate a parameter indicative of a conversion rate for a type of financial instrument traded for the motivation of determining how much a foreign currency is worth when performing trading transactions.

As per claim 9, the combination of Togher and Silverman does not explicitly disclose "wherein the financial instrument is a Forward Rate Agreement". Official Notice is taken that a financial instrument being a Forward Rate Agreement is old and well known in the trading art. It would have been obvious to a person of ordinary skill in the art to use a financial instrument as a Forward Rate Agreement for the motivation of securing a trading financial instrument rate between two trading parties.

As per claim 10, Togher discloses a credit management for electronic brokerage comprising each credit granting entity comprises a trading floor (col. 5, lines 1-18).

As per claim 11, Togher discloses a credit management for electronic brokerage comprising wherein a plurality of trader terminals are associated with at least one group to which the at least one credit granting entity extends credit (col. 7, lines 53-60).

As per claim 12, Togher discloses a credit management for electronic brokerage comprising, wherein the at least one group comprises a plurality of trader terminals associated with a single credit granting entity (col. 5, lines 1-18).

As per claim 13, Togher discloses a credit management for electronic brokerage comprising a credit granting entity (see claim 1 above) but does not explicitly disclose a plurality of credit granting entities. However, it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to use a plurality of credit granting entities into Togher for the motivation of making the Togher's system more versatile.

As per claim 14, Togher discloses a credit management for electronic brokerage system comprising wherein the indication of credit available from the at least one credit granting entity is to the at least one group and is decremented after each trade between that credit granting entity and that group (col. 8, lines 19-29).

As per claim 15, Togher discloses a credit management for electronic brokerage system comprising wherein the indication of credit available from the at least one credit granting entity to the at least one group is decremented by an amount derived as a function of the deal size and the at least one parameter specific to the at least one credit granting entity (col. 8, lines 19-29).

As per claim 16-19, the combination of Togher and Silverman does not explicitly disclose wherein the indication of credit is decremented by a function of a volatility, a conversion rate, a function of a time to settlement of the financial instrument, a time between a settlement date and a maturity date of the financial instrument traded factor for each type of financial instrument traded. However, it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to include these features into Togher and Silverman when performing trading transactions. Doing so, would allow Togher and Silverman to filter out all bids and ask prices entered by users of the system, thereby reducing costs and risks of trading financial instruments.

Claims 5 and 6 meets the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest wherein the minimum credit threshold is also derived from a third parameter which is a factor based on the time to settlement of any financial instrument traded, and is not specific to any one currency, and wherein the third parameter is a factor based on the longest time to settlement of any financial instrument traded.

NEW CITATIONS

US 5,136,501 A (SILVERMAN et al) 04 August 1992, See entire document.

US 5,375,055 A (TOGHER et al) 20 December 1994, See entire document.

PATENT COOPERATION TREATY

CFGS FILE No.

P/3331-26

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To: WILLIAM O. GRAY III
OSTROLENK, FABER GERB & SOFFEN
1180 AVENUE OF THE AMERICAS
NEW YORK, NY 10036

PCT

NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

FEB 01 2001

(PCT Rule 71.1)

Date of Mailing
(day/month/year)

26 JAN 2001

Applicant's or agent's file reference

P/1331-26

IMPORTANT NOTIFICATION

International application No.

PCT/US98/19196

International filing date (day/month/year)

11 SEPTEMBER 1998

Priority Date (day/month/year)

NONE

Applicant

EBS DEALING RESOURCES, INC.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/US

Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

TARIQ R. HAFIZ

Telephone No. (703) 305-9643

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P/1331-26	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US98/19196	International filing date (day/month/year) 11 SEPTEMBER 1998	Priority date (day/month/year) NONE
International Patent Classification (IPC) or national classification and IPC IPC(7): GO6F 17/60 and US Cl.: 705/35, 37, 39		
Applicant EBS DEALING RESOURCES, INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement.
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 10 MARCH 2000	Date of completion of this report 02 JANUARY 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer TARIQ R. HAFIZ <i>Peggy Hanod</i> Telephone No. (703) 305-9643

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US98/19196

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
pages 1-38, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the letter of
- ☒ the claims:
pages 39-42, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the letter of
- ☒ the drawings:
pages 1-8, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the letter of
- ☒ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages 29
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/fig NONE

5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. statement**

Novelty (N)	Claims	<u>1-19</u>	YES
	Claims	<u>NONE</u>	NO
Inventive Step (IS)	Claims	<u>5-6</u>	YES
	Claims	<u>1-4, 7-19</u>	NO
Industrial Applicability (IA)	Claims	<u>1-19</u>	YES
	Claims	<u>NONE</u>	NO

2. citations and explanations (Rule 70.7)

Claims 1-4 and 7-19 lack of inventive step under PCT Article 33(3) as being obvious over Togher et al (Hereinafter referred to Togher US 5,375,055) in view of Silverman et al (Hereinafter referred to Silverman US 5,136,501).

As per claim 1 and 7-8, Togher discloses a computerized trading system for trading financial instruments between traders at trader terminals, comprising:

A communication network for transmitting electronic messages between the trader terminals (col. 5, lines 1-9).

A plurality of trader terminals connected to the communication network, each trader terminal being associated with a credit granting entity, and each trader terminal comprising means for generating price quotation messages in respect of financial instruments (col 5, lines 10-24).

The communication network comprising:

A credit store for storing an indication of credit available from each credit granting entity (col. 5, lines 9-15 and col. 6, lines 23-35).

A distributor for distributing the price quotation messages to trader terminals for display (col. 5, lines 5-17, 35-39 and col. 6, lines 23-32).

A credit filter arranged to filter the price quotation messages to each trader terminal associated with at least one credit granting entity (col. 7, lines 53-60).

Wherein the credit filter is so arranged that only the prices indicated by price quotation messages for which it is determined with reference to the credit store that a minimum credit threshold is available on a bilateral basis from and to the one credit granting entity are displayed at the trader terminals associated therewith, the minimum credit threshold being at least equal to the available credit required by

the one credit granting entity to complete a trade of a predetermined minimum size (col. 8, lines 1-18).

Togher et does not explicitly disclose "wherein a separate minimum credit threshold is established for each credit granting entity and is derived from a function of at least one parameter specific to each credit granting entity and related to the nature of at least one financial instrument being traded". Silverman et (Continued on Supplemental Sheet.)

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):
al disclose an anonymous matching system that discloses a minimum credit threshold for trading parties (col. 19, lines 33-57). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to use the credit threshold of Silverman with the prediction teachings of Togher. In so doing, the credit management for electronic brokerage system of Togher would be able to take advantage of the efficiency proposed by Silverman to warn a trading party when a credit limit goes below a predetermined value.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 11

As per claim 2, Togher does not explicitly disclose wherein the at least one parameter is a factor indicative of an estimated risk associated with each financial instrument traded. However, Silverman discloses determining a risk for a matching transaction (col. 9, lines 2-20). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the determining risk of Silverman with the disclosure of Togher. In so doing, the credit management for electronic brokerage of Togher would be able to take advantage of the efficiency proposed by Silverman in order to provide his clients with all risks involved in doing a trade for a financial instrument.

As per claim 3, the combination of Togher does not explicitly disclose a volatility factor. However, Official Notice is taken that it is old and well known in the trading industry to use volatility factor for a traded instrument. It would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to include a volatility factor into the disclosure of Togher and Silverman. In so doing, Togher and Silverman would be able to properly assess the risks involved when trading a particular instrument.

As per claim 4, the combination of Togher and Silverman does not explicitly disclose a second parameter indicative of a conversion rate for each type of financial instrument traded. However, it would have been obvious to a person of ordinary skill in the art to indicate a parameter indicative of a conversion rate for a type of financial instrument traded for the motivation of determining how much a foreign currency is worth when performing trading transactions.

As per claim 9, the combination of Togher and Silverman does not explicitly disclose "wherein the financial instrument is a Forward Rate Agreement". Official Notice is taken that a financial instrument being a Forward Rate Agreement is old and well known in the trading art. It would have been obvious to a person of ordinary skill in the art to use a financial instrument as a Forward Rate Agreement for the motivation of securing a trading financial instrument rate between two trading parties.

As per claim 10, Togher discloses a credit management for electronic brokerage comprising each credit granting entity comprises a trading floor (col. 5, lines 1-18).

As per claim 11, Togher discloses a credit management for electronic brokerage comprising wherein a plurality of trader terminals are associated with at least one group to which the at least one credit granting entity extends credit (col. 7, lines 53-60).

As per claim 12, Togher discloses a credit management for electronic brokerage comprising, wherein the at least one group comprises a plurality of trader terminals associated with a single credit granting entity (col. 5, lines 1-18).

As per claim 13, Togher discloses a credit management for electronic brokerage comprising a credit granting entity (see claim 1 above) but does not explicitly disclose a plurality of credit granting entities. However, it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to use a plurality of credit granting entities into Togher for the motivation of making the Togher's system more versatile.

As per claim 14, Togher discloses a credit management for electronic brokerage system comprising wherein the indication of credit available from the at least one credit granting entity is to the at least one group and is decremented after each trade between that credit granting entity and that group (col. 8, lines 19-29).

As per claim 15, Togher discloses a credit management for electronic brokerage system comprising wherein the indication of credit available from the at least one credit granting entity to the at least one group is decremented by an amount derived as a function of the deal size and the at least one parameter specific to the at least one credit granting entity (col. 8, lines 19-29).

As per claim 16-19, the combination of Togher and Silverman does not explicitly disclose wherein the indication of credit is decremented by a function of a volatility, a conversion rate, a function of a time to settlement of the financial instrument, a time between a settlement date and a maturity date of the financial instrument traded factor for each type of financial instrument traded. However, it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to include these features into Togher and Silverman when performing trading transactions. Doing so, would allow Togher and Silverman to filter out all bids and ask prices entered by users of the system, thereby reducing costs and risks of trading financial instruments.

Claims 5 and 6 meets the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest wherein the minimum credit threshold is also derived from a third parameter which is a factor based on the time to settlement of any financial instrument traded, and is not specific to any one currency, and wherein the third parameter is a factor based on the longest time to settlement of any financial instrument traded.

NEW CITATIONS

US 5,136,501 A (SILVERMAN et al) 04 August 1992. See entire document.

US 5,375,055 A (TOGHER et al) 20 December 1994. See entire document.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US98/19196

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 12

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year)
27 June 2000 (27.06.00)

International application No.
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P/3331-26

International filing date (day/month/year)
11 September 1998 (11.09.98)

Priority date (day/month/year)

Applicant

MILLS, Gregory, D. et al

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
10 March 2000 (10.03.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

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